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COMPUTERWORLD

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Profile: Allan Ditchfield has the best of both worlds at MCI, with his IS group on the front lines of new product development. Page 59.

'Tell it to the judge,' say more corporate buyers, who are increasingly filing liability suits against computer vendors. Page 8.

West Coast linkup between Integral Systems and Data Design Associates is good news for SAA but bad news for DEC. Page 6.

Back to the Big Six? Andersen/Price Waterhouse merger could snag on conflict of interest in auditing business. Page 4.

Big Blue bucks for Bachman Information Systems as IBM invests in CASE software firm. Page 10.

ESA's song isn't playing in the plug-compatible community, where users are delaying upgrade decisions. Page 25.

Rats! A government study finds that a 1986 laptop computer purchase hasn't helped IRS productivity. Page 39.

IBM hits Netview 'Help' key

BY ELISABETH HORWITT
CW STAFF

NEW YORK — The usually self-sufficient IBM frankly and unexpectedly admitted last week that it needs help conquering the telecommunications market, announcing plans to plug major gaps in its network management strategy with products from five smaller companies.

"Customers need solutions now, and with telecommunications requirements, we need outside help to enhance the development work going on internally," said IBM Vice-President Ellen Hancock. Users were shocked to learn that IBM will be meeting their long-standing demand for a graphics-based Netview interface with another vendor's product — jettisoning a large portion of a multiyear internal effort to develop such an offering.

Looking for help

IBM acknowledges that it needs third-party assistance for its Netview strategy

IBM's Hancock: *"We need that outside help."*

- **U.S. West:** Graphics-based Netview interface
- **TSB International:** Device to gather real-time PBX alerts and statistics
- **International Telemanagement:** Tools to link various network devices to Netview
- **Carl Vanderbeek and Associates:** Tools to cut Netview/PC application development time
- **Applied Computing Devices:** Network management system for managers

CW CHART: FRANK C. O'CONNELL

IBM has also enlisted third-party help in its long battle to win vendor and user acceptance of Netview and the Netview/PC interface as multivendor network management solutions.

IBM announced that it will purchase U.S. West Network Systems, Inc.'s Graphics Network Monitor, which will provide a user-friendly, mouse-driven, icon-based Netview front end. "Very rarely, if ever, in my experience with [IBM's Communication Products Division] have I been caught by surprise; this did [it]," said Gary Weis, a senior vice-president at Sears Technology Services, Inc.

Sears thoroughly evaluated U.S. West's product two years ago and was "quite pleased with its capabilities," Weis said. At that time, Sears decided against the product because of signs that it might be overloaded by the retailer's giant network and because IBM hinted it had something better in the wings, Weis explained. "Now I'm just scratching my head," he said.

Mistrial

"IBM was still pretty far from having a graphical interface to Netview and got pretty poor reviews when it ran a trial balloon at a recent conference," said David Passmore, a partner at Ernst & Young research subsidiary Network Strategies. Although the U.S. West product "fills a short-term need," it will compound the problem of integrating Netview, "which is already a

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Wang's worst enemy is time

BY PATRICIA KEEFE
CW STAFF

Every day that goes by without a resolution to Wang Laboratories, Inc.'s fiscal straits not only costs new orders — the lifeblood of any firm — but also serves to push its biggest accounts closer to pulling the rip cord.

"I have a meeting this week with a Fortune 10 company, one of Wang's biggest users, that is totally reassessing all of its Wang investments," said Steve Wendler, a program director at Gartner Group, Inc. in Stamford, Conn., last week.

Adding to the crisis atmosphere, Wang said last week it would default on debt and interest payments after rejecting a proposal from creditors to restructure its loans (see story page 97).

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Ashton-Tate leaves SQL at a loss

Delays server support again amid cutbacks

BY JEAN S. BOZMAN
CW STAFF

TORRANCE, Calif. — Ashton-Tate Corp. went back to basics last week in an effort to cope with its mounting financial crisis.

The company announced a cutback of more than 250 of its 1,700 workers and a crash program to finish a crucial new release of Dbase IV. In the process, however, Ashton-Tate scrapped plans to include SQL communications in stand-alone versions of Dbase IV and further delayed release of the network-oriented products that it had once hoped would fuel its future growth.

In a series of repositioning moves, Ashton-Tate announced that it has given up trying to shoehorn both SQL and communications functions into PC-DOS' memory space and will release two versions of Dbase IV Version 1.1 instead.

A package for stand-alone personal computers will fit

Continued on page 6

High-tech weapons, low-tech GIs

BY JAMES DALY
CW STAFF

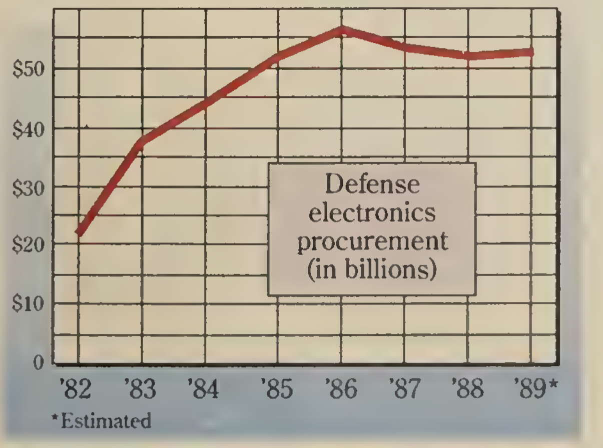
On a drowsy spring evening two years ago, a sailor manning the control room deep within the bowels of the frigate *USS Stark* was monitoring the screen of a sophisticated radar system that was designed to pinpoint and alert the operator to nearby objects in the water and airspace off Bahrain.

While the warm turquoise waters of the Persian Gulf slapped lazily against the ship, an Exocet missile fired from an Iraqi jet rocketed neatly above the waves and straight at the vessel. The missile slipped swiftly through the radar's defensive net, carved a jagged hole in the side of the *Stark* and brought the lives of 37 sailors to a fiery and violent end.

The lingering distaste from the debacle on-board the $300 million warship, coupled with the more recent congressional fight over the enormously expensive Stealth B-2 bomber, highlights a dark side of the Pentagon's increasing integration of high-tech weapons into its war machine.

In the chips

Despite recent moderation because of budgetary pressures, Defense Department spending on electronics has made a big jump since the start of this decade



SOURCE: ELECTRONICS INDUSTRY ASSOCIATION   CW CHART: FRANK C. O'CONNELL

Despite the investment of huge amounts of training time, effort and money, some critics argue that today's super-sophisticated armaments have become so complicated that they have outgrown the ability of sailors and soldiers to use them effectively.

"We're becoming overly dependent on computers," said Gen. Larry Dilda, deputy chief of staff at the Air Force Communications Command at Offut Air Force Base in Bellevue, Neb.

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NEWSPAPER
SECOND CLASS

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97 Wang hopes to come up with a plan before creditors come beating down its door.

Quotable

"When the Department of Defense takes a big bag of money and paints 'AI' on it, this instantly creates a lot of believers in artificial intelligence."

GARY MARTINS
RAND CORP

See story page 1.

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UPDATE

Five years ago, IBM introduced the PC AT. The market praised the performance of the $4,000 machine's Intel 80286 chip but lamented the lack of an operating system to support its memory capacity. PC technology has advanced two generations since then. Graphics monitors can produce photograph-like color images. The first 1G-byte disk drives for the PC have hit the market. IBM is producing 4M-bit memory chips. You can mail-order a 286 machine for less than $700. And now, the market is lamenting the fact that no one wants to *buy* the operating system that supports the AT's memory capacity. Sometimes this industry doesn't move as fast as we'd like to think.

More and more businesses are taking their computer vendors to court when systems fail. Page 8.

Connected work groups represent the next major stage of end-user computing. Page 67.

EXECUTIVE BRIEFING

■ **Should the information systems executive be a technologist or a businessperson?** While most admit that technical savvy is important, the consensus is that understanding a company's business is the key to IS success. The systems professional must be comfortable in the executive suite and familiar with the functional areas that IS supports. **Page 97.**

■ **Some of Wang Labs' largest accounts** are reassessing their investments in products from the beleaguered vendor, posing a serious threat to Wang's already shaky financial status if orders begin to fall. **Page 1.** Wang surprised customers last week with an aggressive stance against its creditor banks and the decision to default on some $300 million in debt payments. **Page 97.** Meanwhile, bad news spread to another industry stalwart as Ashton-Tate announced a 15% layoff and another expected quarterly loss. **Page 1.**

■ **The computer industry's urge to merge** has raised many concerns for information systems managers about pricing, support and access to source code. An increasing number of managers believe the safe haven against the takeover tide lies not with IBM but in open systems. **Page 73.**

■ **IBM says "I can't do it alone"** in telecommunications. In a major shock to users, IBM will buy U.S. West's graphics-based interface for Netview and plug gaps in its networking lineup with products from four other small vendors. **Page 1.**

■ **End-user computing must evolve** from the automation of individual tasks to automation of business processes, according to Nolan Norton & Co. Only by connecting work groups can companies transform their businesses into true information-intensive enterprises. **Page 67.**

■ **New critical success factors for chief information officers** are being shaped by global competition, according to a leading headhunter. CIOs should be familiar with increasingly important foreign cultures and resources, especially with younger bosses committed to decentralization and outsourcing. **Page 78.**

■ **User lawsuits against vendors** are at an all-time high. Legal experts attribute the litigation surge to unreasonable user expectations, shortsighted vendor sales reps and attorneys landing increasingly large jury awards for successful plaintiffs. **Page 8.**

■ **Do-it-yourself IBM VSE users** are doing more than just resisting migration to MVS. They are developing — and marketing — their own enhancements to the IBM midrange operating systems. **Page 17.** Meanwhile, plug-compatible mainframe users are in no big hurry to move to MVS/ESA. They say that in the short term, the cost outweighs the potential benefits. **Page 25.**

■ **Smaller and cheaper videoconferencing systems** should open the technology to a new range of users. Both equipment vendors and telecommunications carriers have lowered the barriers to the technology by dropping prices. **Page 49.**

■ **Information systems at MCI** is both more challenging and more rewarding than at most companies, says top IS executive Allan Ditchfield. The 50-year-old senior vice-president is an integral part of the aggressive firm's product offerings as well as its internal networks. **Page 59.**

■ **IBM looms as a major hurdle** in Arthur Andersen and Price Waterhouse's efforts to merge. IBM's relationship as an Andersen Consulting project partner and a Price Waterhouse audit client runs head-on into SEC conflict-of-interest rules. **Page 4.**

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IBM could snag merger plan

Andersen and Price Waterhouse's ties to IBM may trigger SEC doubts

ANALYSIS

BY CLINTON WILDER
CW STAFF

With their 60-day merger negotiation period scheduled to expire early next month, Arthur Andersen & Co. and Price Waterhouse are grappling with a thorny and potentially merger-threatening conflict of interest named IBM.

IBM, a crown jewel in Price Waterhouse's collection of auditing clients, also works closely with Arthur Andersen's Andersen Consulting unit on a variety of contracts for systems integration and software development.

However, the U.S. Securities and Exchange Commission (SEC) expressly forbids any joint ventures between audit firms and their clients because of the possibility that the auditor's objectivity can be compromised.

Too close?

Andersen Consulting and IBM "have more of an involvement than the SEC would allow" after a Price Waterhouse-Andersen merger, said David Lord, managing editor of "Consultants News," a newsletter based in Fitzwilliam, N.H. "Could it be a deal-breaker? That's a good question. It certainly seems like the toughest issue that they have to deal with."

An Andersen spokesman acknowledged that IBM is "one of the important issues that need to be addressed," but Andersen and Price Waterhouse have refused to comment on the status of the negotiations.

However, Lord and other observers said that they doubt that Price would give up the IBM audit business that it has held for more than 30 years.

There are several possible scenarios, according to those who follow the Big Eight. Andersen Consulting partners may use their voting power to block the merger, with the potential IBM conflict being one reason. When the proposed merger was announced, sources both inside and outside Andersen viewed it as motivated by the auditing side [CW, July 10]. Many view the current phase of negotiations as being at least as much between Andersen's auditors and consultants as it is between Andersen and Price.

"The [Andersen] consultants are not happy about this," Lord said.

Another possibility is that Andersen could sell part or all of its ownership of Andersen Consulting, possibly to IBM itself.

If Andersen Consulting is completely separate from a Price-Andersen combination, there would be no SEC conflict. By formalizing its relationship with IBM through an IBM investment, Andersen would strengthen its already formidable presence in the integration and consulting market.

Andersen would significantly bolster IBM's service offerings, which the No. 1 computer vendor has been moving to expand at a dizzying pace. In recent months, IBM has bought equity stakes in such integration services firms as Computer Task Group, Inc. and American Management Systems, Inc. and has signed an unprecedented facilities management contract to run Eastman Kodak Co.'s U.S. data centers for the next 10 years [CW, July 31].

If IBM owned Andersen Consulting, however, it could threaten Andersen's objectivity in hardware and software recommendations to clients.

A third scenario is that Price and Andersen could petition the SEC to relax its rules on audit client/joint venture conflicts of interest. Several Big Eight firms attempted such an effort last year and were rejected, but the SEC said it would continue to review future petitions.

Bloated inventory prompts Unisys to review operations

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — Facing excess inventories and softer than expected demand for its computers worldwide, Unisys Corp. announced last week that it has embarked on a "thorough top-to-bottom review" of its operations and staff cutbacks.

The review, results of which are expected in September, will address several broad initiatives, according to Unisys officials, including a move away from proprietary architectures and a "streamlining" of the firm's product line by using common parts and processes across product families. In addition, Unisys said it would reduce its costs by at least $400 million between now and the end of the year.

Staff reductions of 7% to 8% — on top of the 3% staff cut announced early this year — and the elimination of overhead in various corporate, administrative and technical departments are also planned, the company said. Two weeks ago, Unisys announced a hiring and salary freeze for its 90,000 workers.

"We intend to manage Unisys for profit and cash flow," summarized Chairman and Chief Executive Officer W. Michael Blumenthal, noting that while the cost reduction plan is targeted at 1990, it will have "positive benefits" for the fourth quarter of this year.

A move away from high-margin proprietary systems toward higher growth but lower margin microprocessor-based systems tracks with the strategy of Unisys' competitors, according to Nikko Securities Co. International computer analyst Michael Geran.

"The real issue," Geran said, "is how do you superimpose these open systems on top of proprietary architectures" and make the product's cost performance desirable to customers. On the cost-reduction plan, Geran speculated that Unisys has been about 6% out of line with its competitors.

SAA Displaywrite version deferred

BY STANLEY GIBSON
CW STAFF

Faced with a difficult rewrite of its widely used Displaywrite text processing software to make it comply with Systems Application Architecture (SAA), IBM has chosen to enhance it separately, postponing an SAA version of Displaywrite for the indefinite future.

The decision by IBM highlights the difficulty of offering both SAA compliance and a compatible growth path for a large customer base. IBM said it will continue to enhance the PC-DOS and OS/2 versions of Displaywrite. Meanwhile, the firm is at work on a fully SAA-compliant text processor that will be integrated with its Officevision Office Automation package. The text processor and Displaywrite will gradually become more and more alike, IBM said.

IBM recently unveiled Displaywrite Version 5.2, the first OS/2-based version of the package. Despite being written for OS/2's Standard and Extended Editions, Displaywrite offers no compliance with SAA's Common User Access (CUA), a user interface intended to give similar screens with similar commands to users of SAA systems. OS/2 Extended Edition is one of the four SAA operating systems.

One user said IBM's approach is fine with him and that he wants to continue using MS-DOS versions of Displaywrite for some time. And when an eventual move to OS/2 and SAA is in the offing, a smooth transition between text processors will be welcome, said Michael Farrell, vice-president of systems at Automatic Business Centers, Inc. in Moorestown, N.J.

"Having consistency between text processors is important. I don't feel like changing word processors every two years," Farrell said.

Farrell currently uses Displaywrite/36, Displaywrite/400 and PC-DOS-based Displaywrite Versions 3 and 4.

The difficulty in changing Displaywrite to comply with CUA is that Displaywrite is written in character mode and would have to undergo extensive modification to run in the graphical bit-map mode of CUA's Presentation Manager user interface. IBM officials said they decided against a rewrite to add CUA compliance because of the time and expense required.

Back in Utah . . .

Meanwhile, Wordperfect Corp., based in Orem, Utah, promised to introduce an OS/2-based version of its Wordperfect text processing software by mid-1990. Chuck Middleton, director of OS/2 product development at Wordperfect, said it will offer an SAA-compliant CUA based on Microsoft Corp. and IBM's OS/2 Presentation Manager.

The adaptation of Wordperfect to bit-map mode is taking Wordperfect 25 to 30 man-years of development, Middleton said.

"We're in a transition period," said Anthony Mondello, head of office products at IBM's Application Systems Division. "We have to keep the current [Displaywrite] product fully competitive. Later, we will move its capabilities under Presentation Manager."

IBM now offers a simple SAA text processor, or notepad, with a Presentation Manager version of CUA as part of Officevision. That text processor will receive a major enhancement in March 1990, Mondello said, although he cautioned that the version will not have as much functionality as Displaywrite.

Until Displaywrite and Officevision text processors evolve into nearly identical packages, Mondello said users who wish to do so can access Displaywrite from Officevision.

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Software firms' merger boosts SAA

BY STANLEY GIBSON
CW STAFF

WALNUT CREEK, Calif. — The merger of West Coast software companies Integral Systems, Inc. and Data Design Associates, Inc., announced last week, promises to boost IBM's Systems Application Architecture (SAA) at the expense of Digital Equipment Corp.'s VAX architecture.

Integral, a vendor of human resources software, said it paid about $30 million in cash and stock for Data Design, a Sunnyvale, Calif.-based vendor of financial software.

Data Design will remain fundamentally intact, becoming Integral's financial software division, said Al Duffield, senior vice-president at Integral. The firm's two divisions will continue to develop and sell software for IBM's 370 architecture, System/38 and Application System/400.

Although Data Design offers its software on DEC VAX hardware, that platform will be deemphasized in order to concentrate the combined firms' resources on IBM's SAA.

"We have thrown a lot of resources at [the VAX products], but it hasn't been a real good market," Duffield said. As part of its SAA strategy, both branches of the company will develop OS/2 Extended Edition versions of their products.

More choice for users

The merger will give users another choice among vendors that offer both financial and human resources packages and increase Integral's ability to compete with rivals McCormack & Dodge Corp. and Management Science America, Inc., which offer both sets of applications.

"People are looking for an integrated product line. There is a lot of linkage between benefits, payroll and financial applications," said Tony Percy, a software analyst at Stamford, Conn.-based Gartner Group, Inc.

Dawn Nelson, vice-president at Harris Trust and Savings Bank in Chicago and a user of Integral software, said she would have considered Data Design financials with Integral's products had the two firms been together when her bank purchased human resources and financial applications two years ago.

Although announced last week, the transaction, worth $30 million in cash and stock, took effect Aug. 10.

Late last year, Data Design founder Dave Lowery's ex-wife Mary sold her shares in Data Design to Integral, representing 20% of the company she and her ex-husband had built from scratch. Integral then bought another 8% of Data Design [CW, July 30]. Lowery will not have a position at Integral but will serve as a consultant, an Integral spokesman said. Lowery sold most of his Data Design shares for cash rather than Integral stock, Duffield said.

Duffield said the new entity should earn $65 million to $70 million in the fiscal year ending March 30, 1990. He said both firms have posted profits for the last five years.

IRS arrests Boston man on electronic tax fraud charge

BY RICHARD PASTORE
CW STAFF

BOSTON — In what may be the nation's first charge of electronic tax fraud, the Internal Revenue Service arrested a man last week for allegedly submitting 45 phony returns via the IRS' new electronic filing system and netting $325,000 in refunds.

For the alleged perpetrator, Alan N. Scott of West Roxbury, Mass., it may have been wiser to stick to the old-fashioned envelope-licking method, because his use of the computer system may have helped the IRS nail him, federal officials said.

The IRS requires electronic tax return transmitters to fill out an application before it issues access numbers and codes. The application process makes it easier to audit a transmitter's trail because his personal code is identified with each return he submits, bogus or otherwise, an IRS spokesman said.

"If we have reason to believe that something inappropriate is occurring, we can immediately deny him access to the system," the spokesman added. It would be much more difficult to catch phony paper returns that continued to be submitted by an individual under suspicion, he noted.

The electronic filing system processed 1.3 million returns from 36 states this past year. Next year, the system will be made available in all 50 states.

Scott, 37, used a fake Social Security number and made false statements on his application to foil the eligibility screening, the IRS charged. He then allegedly transmitted fake returns containing assumed names and bogus Social Security numbers that brought him refund checks ranging in value from $3,000 to $23,000. He was charged with 45 counts of fraud.

If found guilty, he faces a prison term and a $250,000 fine for each count.

Ashton-Tate

FROM PAGE 1

within the 640K-byte memory limit of PC-DOS and will include an SQL implementation but will not be able to communicate SQL queries to a server or mainframe without the use of a third-party communications package. "You can output [SQL] commands, but you'll need something to get [the query] to the server," said Dave Micek, group product manager for Dbase.

A separate release, called Dbase IV 1.1 Server Edition, will include SQL and communications capabilities. It will be designed to run on Personal Computer AT class machines connected to local-area networks running SQL Server, the networked database management system being developed by Sybase, Inc., Microsoft Corp. and Ashton-Tate.

The company would not release target shipment dates, but it looks like neither product will be available until next year. In the meantime, Ashton-Tate will continue to sell Dbase IV 1.0. Current users of Dbase IV will get a free copy of Dbase IV 1.1, when it is available. Users will be able to trade in their 1.1 disks for the Server Edition later at no charge, Ashton-Tate said.

Ashton-Tate also said third-quarter losses at the firm are growing and may exceed the $19.8 million loss sustained in the second quarter.

The decision to split Dbase IV into two parts is a major strategic retreat for Ashton-Tate. The firm has long pledged to include a full SQL and communications functions in Dbase IV and promised to deliver a front end for SQL Server by the end of 1988.

"We were kidding ourselves into thinking that we could do everything in a 640K environment," Ashton-Tate Chairman Ed Esber said. "You can't do that without sacrificing performance."

The SQL Server version will have to be retrofitted with a DOS Extender program to enable it to address more memory. Ashton-Tate did not reveal a target release date or pricing for the SQL Server front end.

Disappointment

Microsoft expressed disappointment with the delay. When SQL Server was announced in early 1988 [CW, Jan. 18, 1988], it was disclosed that Microsoft was acquiring technology from Sybase and would itself be the OEM for the product, while assigning retail distribution rights exclusively to Ashton-Tate.

"Under current conditions, what is happening is somewhat disappointing to us," said David Kaplan, product manager for SQL Server at Microsoft.

Despite the dramatic changes, Ashton-Tate users contacted by *Computerworld* said they were prepared to stick with the Dbase product line (see story at left). But some industry analysts said they believe that Ashton-Tate will eventually have to draw the line between low-end Dbase users, who prefer the Dbase III family, and high-end users, who are moving toward cooperative processing.

"There's been this perception at Ashton-Tate that you have to bring everybody along, even if they're using the computer equivalent of a biplane," said Bob Faulkner, an analyst at Alex Brown & Sons, Inc. in New York. "You have to address the investment your customers have made, but you can't let that become an anchor around your neck."

At the heart of Ashton-Tate's difficulties is the PC-DOS operating system's 640K-byte memory limit. The task of communicating with an SQL Server back end requires multiple megabytes of memory. Ashton-Tate executives now admit that Dbase IV was hampered when developers tried to jam its 500,000 lines of code within the 640K-byte space. Dbase IV Version 1.1 is reportedly even larger.

"In time, people will understand that you shouldn't use DOS for an interface to networked SQL," said Richard Finkelstein, president of Performance Computing, Inc., a Chicago consulting firm. "It's too slow, you have to use overlay modules that bring in pieces of the program, and you have to add extended memory."

Into an abyss

Ashton-Tate's latest moves stem from its plunge from profitability to a loss

Ed Esber Jr., CEO

- Fiscal year '89 revenue: **$307.3M**
- Number of employees: **1,731**
- Revenue for quarter ended:

July '87	July '88	June '89
$63.6M	**$71.9M**	**$59.5M**

- Income for quarter ended:

July '87	July '88	June '89
$10.1M	**$11.5M**	**-$19.8M**

CW CHART: FRANK C. O'CONNELL

Users say they'll hang on

Customers of Ashton-Tate may stick with the company in the face of dismal financial results, but the company's lagging fortunes only add to a laundry list of factors keeping many corporate users from moving to Dbase IV.

Most users contacted by *Computerworld* said they will continue to use Dbase III Plus at least until they upgrade their hardware platforms. Dbase IV requires a hard disk, an investment few will make until they see a wider need for the added capacity. "We are not using IV and have little interest in moving to it from Dbase III Plus," said Jeri Dick, manager of personal systems at Banc One Services.

While some applications are straining at the 640K-byte memory constraints of Dbase III Plus, there are tools available to help them stretch the product capabilities and avoid migration. Among the most popular is the Clipper compiler from Nantucket Corp.

"In some applications, we are hitting the edge on III Plus, and Clipper has allowed us to ease that problem," said T. Ray Lollar, vice-president of information systems at Gold Kist, Inc., an Atlanta farm cooperative. "That has put off the need to go to Dbase IV; we have not begun to evaluate it yet."

The reports of bugs and disappointing performance also deter users from making the transition to Dbase IV. "The list of errors I have read about and the lack of SQL performance have meant that [the evaluation copy of Dbase IV] has stayed on the shelf," said Ron Smith, senior information technology analyst at Best Products, a Richmond, Va., retailer.

CHARLES VON SIMSON

IBM

CONTINUED FROM PAGE 1

set of different products," he added.

Graphics Network Monitor, which is part of the U.S. West Netcenter line purchased last week by IBM, is said to take the information that Netview collects from IBM Systems Network Architecture (SNA) networks and present it to users in a graphic format that is easier to understand. It also allows users to issue VTAM commands to change the network's status and access Netview applications through a terminal-emulation link, according to IBM spokesman Mark Knittel.

IBM's still-incomplete graphical interface will be merged with the existing U.S. West product, and the combined system will be enhanced, according to IBM. The vendor also plans to migrate the system to its OS/2 Extended Edition, Common User Access and other Systems Application Architecture specifications, Knittel said. Other potential enhancements include support of non-SNA devices, which U.S. West has been working on.

IBM also announced agreements to recommend or market the following additions to its telecommunications arsenal:

- Hubview/PC from TSB International in Toronto, which is said to collect real-time network alerts and traffic statistics from a variety of private branch exchange systems, including Rolm Systems CBX 9000 and 9751, and forward them to Netview. IBM will work with TSB to develop an OS/2 version, the vendor said.
- Tools from International Telemanagement (ITM) in Vienna, Va., which collect information from a variety of non-IBM networking devices as well as from Rolm switches. The products currently include a Netview interface. IBM is working with ITM to port them to its AIX operating system and integrate them with the U.S. West graphics package, Hancock said.
- Network management tools for carriers' central offices from Applied Computing Devices in Terre Haute, Ind.
- A tool from Carl Vanderbeek and Associates in San Juan Capistrano, Calif., that is said to cut the time it takes to develop a Netview/PC application from several months to several days. IBM also unveiled a testing facility for Netview/PC application developers that have no access to a Netview host.

These announcements demonstrate that IBM is "still trying to breathe some life into Netview/PC and Netview as multivendor network management solutions," Passmore said. "I'm not sure they will be successful."

Last week marked IBM's formal entry into the network design and management services arena, through its National Service Division, Hancock said. The division will provide tools and consulting to help clients integrate IBM and non-IBM equipment into a corporate networking system and either work with them to design a network control center "or take over operations if they choose," she added.

Details given of Rolm deal

No major surprises emerged last week as IBM Vice-President Ellen Hancock and Siemens Information Systems, Inc. Executive Vice-President Peter Pribilla put their pens to the contract that finalized the co-ownership of IBM's former communications subsidiary, Rolm Systems. The signing ended eight months of negotiations since the companies announced plans to pool their resources in the private branch exchange (PBX) market.

Both executives spent a lot of time and energy reassuring customers that the vendors were committed indefinitely to marketing and supporting their major U.S. PBX lines through existing channels.

The agreement outlined the following arrangements:

- Siemens will have sole ownership of Rolm Systems, which will develop and manufacture Rolm PBXs, telephones and peripherals.
- Rolm Co., a newly formed joint venture, will service and market Rolm products in the U.S. Tel Plus Communications, a Siemens subsidiary, will remain responsible for marketing the vendor's Saturn PBX. Both companies will use their current marketing and support channels.
- IBM and Siemens will jointly develop voice/data solutions, such as the recently announced Integrated Services Digital Network (ISDN) interface for the Rolm 9751.

Functional overlap — and therefore competition — between the Saturn and Rolm 9751 lines remains at a minimum, Pribilla said. However, some firms use both systems and will be served through joint calls by Rolm Co. and Tel Plus, he said. The two vendors also plan to fulfill a perceived customer demand for integration between the two systems, Pribilla added. Through their joint development effort, IBM and Siemens will provide links between the Saturn and Rolm 9751 line, through T1, ISDN and other types of integration, he said.

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NEWS SHORTS

IBM buys into Knowledgeware

IBM continued its buying spree in the software industry late Friday by taking a minority interest in Knowledgeware, Inc. The Atlanta-based computer-aided software engineering firm was the second small CASE vendor favored by IBM last week. IBM earlier bought into Bachman Information Systems, Inc. [see story page 10]. Both Bachman and Knowledgeware have been reported to be working closely with IBM on its application development and repository strategy.

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CA-Cullinet link gets SEC blessing

Computer Associates International, Inc. last week announced that the Securities and Exchange Commission has given it the go-ahead for its proposed merger with Cullinet Software, Inc. Cullinet shareholders will cast their votes on Sept. 12 in Westwood, Mass. A CA spokesman said that the merger, if approved, will likely be consummated the same day.

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AIX/370 date set

Six months after postponing its mainframe version of Unix, IBM announced last week that AIX/370 will be available in the first quarter of 1990. The operating system was scheduled for delivery in February 1989 but was delayed for further testing. At the time, IBM had said it was taking longer than anticipated to meet customer requirements and that it would not commit to a general availability date. IBM also said last week that the AIX/370 Network File System (NFS), a separately licensed program that supports rival Sun Microsystems, Inc.'s NFS protocols, is scheduled to be available in the first quarter of next year.

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AT&T joins object-oriented team

The Object Management Group announced 11 new members last week — including heavyweight AT&T — bringing its total membership to 29. The group was formed in April to promote adoption of a standard object management environment based on Hewlett-Packard Co.'s New Wave Object Management Facility. Such a standard would allow different applications and data types to be combined across a network.

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Sun loss projections on mark

Eleven weeks after its first indications that quarterly financials had soured, Sun officially cast that prediction in concrete last week when it announced a quarterly loss of $20.3 million. The once-unblemished workstation manufacturer reported a net loss of 25 cents per share for the quarter, compared with profits of $25.3 million, or 33 cents per share, in the fourth quarter a year ago. Revenue for the fourth quarter was $431.2 million, an 18% increase over the same period a year ago.

. . . .

HP profitable, but . . .

Although Hewlett-Packard reported a 23% gain in revenue last week, it said earnings decreased by 3% in its third quarter. Quarterly earnings were $187 million on revenue of $3 billion. The organization blamed most of the loss on the April acquisition of workstation maker Apollo Computer, Inc., which was expected. However, it also said that the lack of demand for minicomputers was another cause. According to the company, there have been instances of order cancellations and rescheduling of orders for minis.

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German hackers prosecuted

Three years after alleged forays into government, defense contractor and university computers in the U.S. and other countries, West Germany has indicted three men on espionage charges. The men, two of whom are in custody, are charged with passing information to the KGB, the Soviet intelligence agency. Their activity was detected in 1986 by then-University of California at Berkeley computer researcher Clifford Stoll, who kept records of the break-ins over Internet and set a computer trap for the hackers.

User-vendor claims jam dockets

BY MICHAEL ALEXANDER
CW STAFF

If your computer hardware or software fails to perform as promised by the vendor, tell it to a judge. That is what more corporate computer buyers than ever are doing, according to legal and insurance experts.

"The number of [user] claims [against vendors] has escalated over the last two years, but it has been relatively recently that I have seen a tripling of the number of user-vendor litigation cases," said John Lamberson, a software industry specialist at Corroon and Black Corp., an insurance brokerage firm in New York.

No one knows how many computer liability cases are pending around the country, but experts agree the number is growing. "Yes, there are more cases; yes, there are bigger judgments; and, yes, there are a greater variety of suits against vendors and consultants. That is all we can be sure of," said Harry Armstrong, editor of the newsletter "Computer Industry Litigation Reporter."

Contract woes

At least one recent computer liability case suggests that what happens after the sale is becoming a primary source of worry for many vendors. In May, the Ninth U.S. Circuit Court of Appeals held in a Reno, Nev., case that claims made in a preliminary sales letter written by a then-Burroughs Corp. sales representative were an integral part of the firm's contractual agreement with Sierra Diesel Injection Services, Inc.

The decision is important for software and hardware vendors because the trial court found that printed form contracts supplied by Burroughs (and similar to those supplied by many vendors) were ambiguous, according to legal experts.

In another case in the Ninth Circuit Court in San Francisco, Unisys is appealing a $785,000 award to Beaver Insurance Co. based on that company's claims that the computer system that it purchased from Burroughs failed to perform as promised.

However, an award in a case decided in a federal court in California late last year stunned the legal profession and at the same time made clear that computer liability cases were becoming a lucrative new field for attorneys to pursue, according to Lee Gesmer, an attorney at Lucash, Gesmer and Updegrove in Boston.

DAVID FLAHERTY

In December 1988, a jury awarded $48.3 million to Geophysical Systems Corp. based on its 1981 purchase of $15 million worth of allegedly faulty computers from Seismograph Service Corp., a subsidiary of Raytheon Corp. Geophysical had claimed that the computers, which were to be used to process seismic data and make maps of underground oil and gas reservoirs, failed to perform as promised, and as a result, Geophysical was forced into bankruptcy in 1983.

"It is the largest by 10 times of any that I have seen for this type of claim," Lamberson said.

In March, a federal judge ordered a new trial on the damages award that was granted in the user-vendor dispute.

With widespread use of computers and a greater reliance on them, it was no doubt inevitable that the number of computer liability lawsuits would multiply, said Mark Gordon, an attorney at Gordon & Glickson P.C., a law firm in Chicago.

Some companies buy computer systems with unreasonable expectations of what the equipment will do for them, Gesmer noted. When the system does not meet those expectations, the companies are quick to sue.

"Also, there is tremendous pressure on the sales rep to make the sale and get the commission, so he is not worried about what happens after the sale," Gesmer said.

Seismograph Service, like most companies selling computer equipment, was not insured against computer liability claims from its customers. According to Lamberson, very few insurance companies are willing to sell what amounts to malpractice insurance.

"Almost every basic general liability insurance policy for business will exclude coverage if a company has failed to perform its professional duties," Lamberson explained. For that sort of coverage, a company must have an errors-and-omissions clause in its liability insurance policy, which few firms will underwrite, he said.

Pressing suits should be a last resort

A company should use whatever means necessary to protect itself against losses caused by a computer system that fails to perform as promised, but litigation should be the last resort, according to Mark Gordon at Gordon & Glickson. "In the first instance, the MIS director should rely on the procurement document," he said.

Ask the prospective vendor to sit down with the company's technical staff — and end users, if needed — to work out "in excruciating detail" the expectations for the performance of the system, the attorney advised. "They must put the vendor on notice and tell the vendor that the value of [the] system is not the price but the cost to the company when it fails to operate properly," Gordon said.

The procurement document should detail who will install the system, who is responsible for conversions and what responsibilities the information systems director has. If the system is to be interconnected with products made by other vendors, then those vendors may have to be brought into the procurement process. Issues related to support and maintenance during the life of the system must also be spelled out, Gordon noted.

If you find yourself in dispute with a vendor, exercise your contractual rights and refuse to pay, Gordon advised. Do not bring the lawyers in just yet. Explore ways to resolve the dispute such as asking senior executives in your company to meet with their counterparts on the vendor's side.

When all else fails, sue for breach of contract, fraud and, in some states, deceptive trade practices, Gordon concluded.

MICHAEL ALEXANDER

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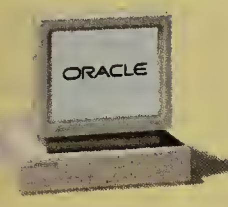
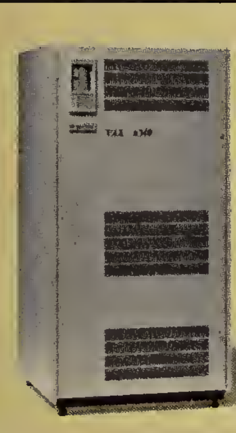
 DECstation 3100 ULTRIX/RISC	ORACLE	🚫Rdb
 VAX/ULTRIX	ORACLE	🚫Rdb
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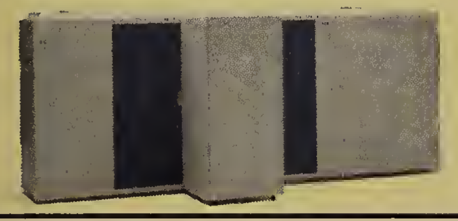 IBM Mainframe	ORACLE	🚫Rdb

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U.S. CONFERENCES

AK	Anchorage	Aug 8
AL	Birmingham	Aug 16*k*
	Mobile	Sept 7*f*
AR	Little Rock	Sept 7
AZ	Phoenix	Sept 14*k*
	Scottsdale	Aug 8*f*
CA	La Jolla	Aug 17*k*
	Los Angeles	Aug 15*m* Sept 19*k*
	Newport Beach	Aug 10*a* Sept 28*f*
	Pasadena	Sept 12*f*
	Sacramento	Sept 21*f*
	San Diego	Sept 21*af*
	San Francisco	Aug 24 Sept 28
	Santa Clara	Aug 17*fk* Sept 28*am*
CO	Colorado Springs	Aug 24 / Aug 24*g*
	Denver	Aug 22*gk* Sept 1*u*
CT	Farmington	Aug 3*f*
	Stamford	Sept 12*m*
DC	Washington	Aug 17*g* Sept 12*g*
FL	Jacksonville	Aug 9*f*
	Melborne	Aug 23*k*
	Miami	Sept 20*f*
	Tampa	Sept 6*fk*
GA	Atlanta	Sept 13*k*
	Savannah	Aug 10*k*
HI	Honolulu	Sept 14*fp*
IL	Chicago	Aug 23*fk* Sept 14*g* Sept 20*af*
	Springfield	Sept 7
IN	Ft. Wayne	Sept 14
	Indianapolis	Aug 29*f*
KS	Wichita	Aug 15
KY	Lexington	Sept 19
LA	Baton Rouge	Aug 24*m*
	New Orleans	Sept 20*k*
MA	Boston	Aug 1*f*
	Burlington	Aug 10*g*
	Framingham	Sept 7*f*
MI	Dearborn	Sept 5*fp*
	Lansing	Aug 10*f*
	Troy	Aug 8*am*
MN	Minneapolis	Aug 9*af* Sept 12*fm*
MO	Kansas City	Aug 3*fk* Sept 20*a*
	St. Louis	Aug 8*fm* Sept 12*af*
NH	Bedford	Sept 6
NJ	Asbury Park	Aug 8*g*
	Iselin	Sept 12*m*
	Saddlebrook	Sept 9*f*
NY	Amherst	Sept 14*f*
	East Syracuse	Aug 10*k*
	Melville	Aug 16*a* Sept 20*f*
	New York City	Aug 9*f* Aug 23*p* Sept 13*f* Sept 27*k*
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	Houston	Aug 17*fk* Sept 21*o*
	San Antonio	Sept 28*fpa*
UT	Salt Lake City	Sept 7*k*
VA	Richmond	Sept 21*l*
WA	Bellevue	Sept 20
	Spokane	Sept 26
WI	Madison	Aug 17*f*
	Milwaukee	Sept 12*f*

The following key indicates additional afternoon seminars that are offered with these seminar dates:

a	Macintosh Networking
f	Oracle Financials
k	CASE/Application Tools
l	Oracle Mail
m	Computer Integrated Manufacturing
o	On-line Transaction Processing
p	PC Product Solutions
u	Unix

Please note:

g	Seminars held for Federal Government only.
*	Only the afternoon seminar is held that day.

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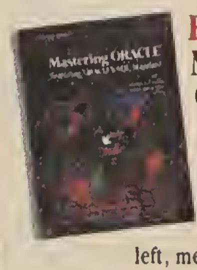
Calgary	Sept 14
Halifax	Sept 26
Ottawa	Aug 3 Sept 7
Montreal	Sept 6
Quebec	Sept 27
Regina	Sept 2
Vancouver	Aug 10 Sept 14
Victoria	Sept 21
Winnipeg	Aug 10



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COMPUTERWORLD

IBM puts money on CASE firm

BY AMY CORTESE
CW STAFF

CAMBRIDGE, Mass. — With its repository announcement looming on the horizon, IBM continued its campaign to pick its favorites in the independent software market last week, investing an undisclosed amount in CASE vendor Bachman Information Systems, Inc.

While the move appears to put Bachman on the inside track for future IBM activity relating to computer-aided software engineering (CASE), the vendors not singled out remained outwardly unruffled, maintaining that it is in IBM's best interest for everyone to play along.

Bachman is one of three CASE vendors that will reportedly participate in IBM's repository announcement next month [CW, Aug. 14]. According to sources, the vendors are privy to IBM's repository strategy and will be able to demonstrate products at that time, while other vendors are likely to announce products to be available at a future date. The long-awaited repository will play a central role in IBM's Systems Application Architecture (SAA) application development strategy, managing all information about applications and data.

Bachman made its name in a relatively new area of CASE that involves reusing existing program code and database designs in new development efforts. The firm's Bachman/Re-engineering Product Set can be used to help convert applications based on nonrelational database management systems such as Cullinet Software, Inc.'s IDMS and IBM's own IMS for DB2. Bachman has participated in IBM campaigns to educate users who are migrating from their present DBMS to DB2.

The IBM investment, pegged at $4 million by a vendor who asked not to be named, will give Bachman the needed capital to expand its product line. Bachman wants to add other IBM DBMSs as targets so that any database format that is put into the Bachman tool can be re-engineered into any SAA-compliant DBMS format, according to Arnold Kraft, president and chief executive officer of Bachman. Additionally, he said, the firm intends to bring its products, now available for MS-DOS, to OS/2.

Small circle

Although IBM instituted an "enabling" program earlier this year to encourage vendors to design their tools to work with the repository, a select few vendors make up an inner circle. Through close ties with IBM, these vendors — which, according to sources, include Index Technology, Inc. and Knowledgeware, Inc. in addition to Bachman — receive advance knowledge of IBM's repository and application development strategy and, in some cases, technical and field support.

While competitors acknowledge that the select few may get to market faster, they insist that all can play in SAA. "All we're talking about is a timing advantage," said Kevin Burns, president and CEO of Sage Software, Inc. IBM's CASE blueprint "will be an open architecture; anybody can build products that work with it."

Under terms of IBM's equity interest in Bachman, IBM has the option of taking a seat on the company's board. Bachman is the latest in a string of IBM equity investments in software firms; however, it is the first CASE vendor of the bunch. Kraft called the deal a "precursor of what is going to happen for software firms in the future."

In the expensive CASE marketplace, where development consumes many resources but payback is often slow, funding is critical to keep pace. Ed Acly, a software analyst at Framingham, Mass.-based International Data Corp., agreed, saying that "IBM realizes that and is willing to invest in and prop up some of the companies a bit."

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BY ROSEMARY HAMILTON
CW STAFF

NATICK, Mass. — Prime Computer, Inc. last week joined the ranks of other traditional minicomputer vendors that are trying hard to maintain their proprietary lines while also making a big splash in the Unix-based open systems market.

With its most aggressive Unix assault to date, Prime staked a claim for commercial computing with a Unix-based system that can be expanded to a mainframe-class machine. The system is a result of Prime's reseller deal with Sequent Computer Systems, Inc. earlier this year.

However, observers said that the new EXL 1200 series, which was introduced last week, will score few points with traditional mainframe users. The system may run at mainframe speeds — it clocks in at 120 million instructions per second (MIPS), according to Prime — and support up to 1,000 users, but it still runs the Unix operating system. Further, Unix-based systems have yet to gain much acceptance in large-scale mainstream computing environments, observers said.

"I don't think Unix has much of a chance in the production environments of large data centers," said Thomas Willmott, a vice-president at the Aberdeen Group, a Boston-based consulting firm. "The transaction throughput of [Unix-based] relational products has been improving dramatically, but it's still Unix-based. It isn't the operating system of choice."

Prime is positioning the system for database management, transaction processing and office automation applications, all key operations in large data centers. While a company official said Prime "isn't trying to replace what's in the traditional MIS shop," he also said that users are demanding Unix.

"It's not the vendors that are forcing Unix on them," said Peter Gibbs, director of the Unix server marketing group at Prime. "The user is getting a lot smarter about where he invests his next dollar."

> "I DON'T think Unix has much of a chance in the production environments of large data centers."
>
> THOMAS WILLMOTT
> ABERDEEN GROUP

At Northern States Power Co. in Minneapolis, however, the new system received a lukewarm response. Although the company uses a Prime 6350, it relies on IBM's DB2 running on an IBM 3090 Model 400E for database management, according to technical services manager David Schodde, who said he expects the company to stick with DB2 and does not see a Unix-based system taking over in that department.

Gibbs said that beyond mainstream commercial environments, he expects the system to do well in areas in which the company has traditionally been strong, such as computer-aided design and manufacturing and the Pick Systems' Pick operating system arena. Prime said the EXL 1200 series can run Pick on top of Dynix, which is Sequent's version of Unix that also runs on the new Prime hardware.

Two models make up the EXL 1200 series: the 1227, a smaller version that can be expanded to accommodate up to five dual-processor boards, and the 1281, a high-end model that can hold up to 30 processors.

The EXL 1200 series uses the Intel Corp. 80386 microprocessor; it was designed as a scalable system, allowing users to add processor boards, each of which contains two microprocessors. An entry-level version costs $94,500, for which a user gets an 8-MIPS machine with one CPU board and 8M bytes of main memory.

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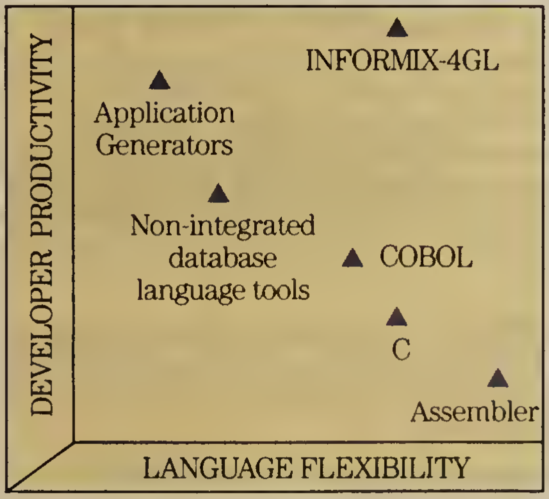

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Militant VSE users upbeat but impatient

BY AMY CORTESE
CW STAFF

Weeks after IBM publicly proclaimed its support for VSE — long the poor stepchild to MVS — users are encouraged that VSE will be assured a respectable place in the company's pocketbook, if not its heart. However, impatient with IBM's pace, users are still relying on their own ingenuity for quick fixes.

IBM has been slow to provide enhancements to VSE, and users have spawned an underground market for their own VSE add-ons.

At the Guide, Inc. user group conference in July, a set of modifications expanding VSE work load capacity was announced, but not by IBM. John Baker, a senior systems programmer at Policy Management Systems Corp. in Columbia, S.C., developed the modification that extends available partitions from 12 to 15. Coincidentally, IBM took a 20% equity interest in the firm shortly afterward.

> "IBM SAYS it won't let VSE die. I hope they keep their word."
>
> MIKE JHUBOOLALL
> PHILLIP BROTHERS

Similarly, another user, Pete Clark at Olan Mills, Inc., made available last year an enhancement that he developed extending virtual memory space under VAE, or Virtual Address Extended. IBM subsequently incorporated Clark's modification into Release 3.2 of VSE.

Unofficially known as VSE 15, the partition support patch is a critical patch for people running a large-scale VSE machine, according to Rich Roth, a senior systems programmer at American Federal Bank in Greensville, S.C. The modification, which allows users to split their system into 15 partitions, will be distributed free of charge by Smartech Systems, Inc. in Dallas.

"I think Pete [Clark] has really started a crusade," said Eric Vaughan, president of Smartech.

At a briefing last month, IBM said it intended to bring the midrange operating system closer to MVS [CW, July 10]. Users anticipate an IBM Enterprise Systems Architecture version of VSE, which will likely include capacity enhancements that go well beyond 15 partitions. But they said the new version is not expected to arrive for 18 to 24 months.

According to Vaughan, in addition to patches developed by users such as Baker and Clark, members of the VSE chapter of Guide have traditionally shared homegrown solutions and patches. For instance, a collection of enhancements contributed by users called the "contributed facilities tape" is regularly made available at Guide.

VSE users' dogged resistance to IBM's pressure to migrate to MVS and the success of VSE among new 9370 users have largely forced IBM's about-face on VSE. Users said they are encouraged by IBM's recent show of support for the operating system, but memories linger of its attempts to kill VSE and move users to MVS, and some are still wary.

"IBM wanted to get rid of VSE and migrate users to MVS," said Mike Jhuboolall, a VSE systems programmer at Phillip Brothers, Inc. in New York. Now, he added, "IBM says it won't let VSE die. I hope they keep their word."

Roth was more optimistic. "It appears there has been a definite move to a bigger commitment on the part of IBM," he said. "I feel more comfortable with VSE's long-term viability than I ever have."

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Vendors opt for a high-fiber diet

FDDI standard may win users with Token-Ring link, vendor support

BY ELISABETH HORWITT
CW STAFF

Several leading vendors gave the FDDI fiber networking standard a much-needed boost toward greater user acceptance last week with announcements that promise to lower equipment pricing and provide broader connections between FDDI backbones and popular local-area network and computer installations.

Right now, only a handful of available vendor products support the American National Standards Institute's Fiber Distributed Data Interface (FDDI), which defines 100M bit/sec. fiber-based networks.

About 200 FDDI interfaces will be installed in user sites by year's end, according to Kessler Marketing Intelligence (KMI), a research company based in Newport, R.I. But the fiber networking standard could start taking off next year, with 3,000 interfaces installed in 1990 and approximately 188,000 installed in 1993, KMI predicted.

The standard will penetrate two market areas, according to KMI analyst Richard Mack: in the near term, backbones that interconnect existing LANs and in the longer term, "high-end networking [for] workstations that require high throughput — specifically, imaging or graphics."

Fibronics International, Inc. in Hyannis, Mass., announced several products last week that were designed to position its FDDI products more strongly in the LAN backbone niche. A major introduction was a dual-LAN interface, which is said to allow Fibronics' existing FX8210 FDDI to LAN Bridge to connect two Ethernet LANs — instead of one — to an FDDI backbone. This cuts the price per connection from $25,000 to $11,500.

Fibronics also announced interfaces that are said to provide FDDI connections for one or two IBM or CCITT 802.5 Token-Ring LANs. The interfaces cost $7,000.

Beer and Token-Rings

Coors Brewing Co., which currently uses Fibronics' FX8210 FDDI interfaces to interconnect six Ethernet LANs over a high-speed campus backbone, is planning to install the Token-Ring interface during the first quarter of 1990, said Coors network planner John Andrews.

The Token-Rings will allow IBM terminal users to access hosts at 4M bit/sec. speeds, as opposed to the 9.6K or 19.2K bit/sec. remote links currently provided by Novell, Inc. PCOX gateways, he added.

The Boulder, Colo., beverage company may also install the dual Ethernet interface as a way to segregate electronic mail users from computer-aided design workstation users who potentially could cause response-time problems, said William Rolfe, also a Coors network planner.

Fibronics also introduced the FX8322 Mainframe Channel Attached Network Controller. Priced at $35,000, it is said to attach an IBM mainframe channel directly to an FDDI network using Transmission Control Protocol/Internet Protocol.

Also last week, Hewlett-Packard Co., Siemens Information Systems, Inc. and AT&T announced a multisourcing agreement said to ensure interchangeability among the components manufactured by their FDDI transceiver subsidiaries.

The goal of the trio is to create a de facto industry standard for FDDI transceiver components that will eliminate the need for FDDI vendors to design their products around a single supplier's products, according to an HP spokesman. The long-term effect of standardized components will be to ensure quality and to significantly decrease FDDI equipment prices, he added. One major FDDI transceiver firm has already announced support.

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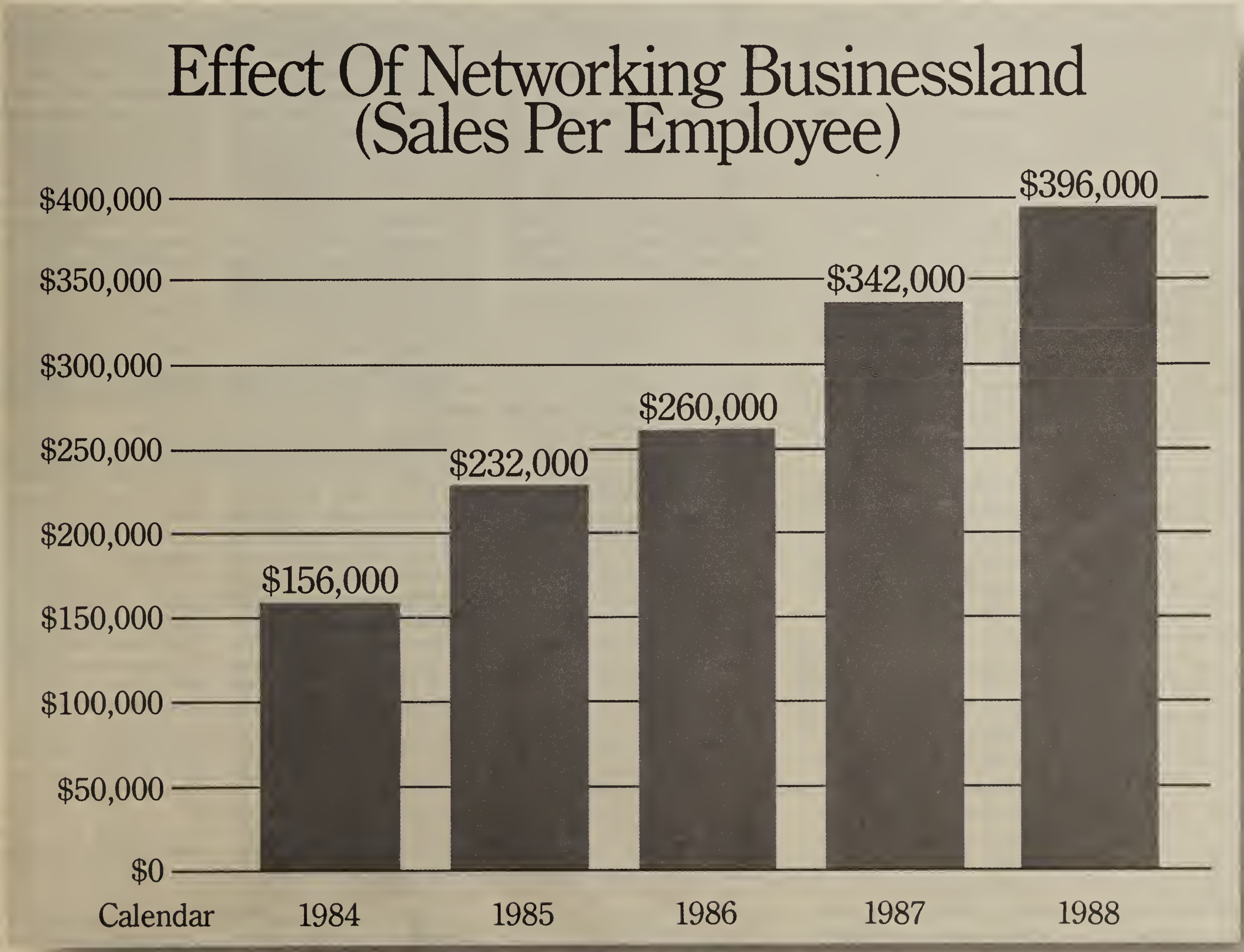

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EDITORIAL

Coming clean

IN THE PAST month, three high-fliers have come crashing rudely to earth. The once-powerful Wang Laboratories today is fighting for its life. Sun Microsystems is confronting a management crisis and financial chaos, and last week Ashton-Tate admitted to a series of management miscues, cut its work force and put some significant product plans on hold.

Rather than belabor the mistakes that led these companies into dire straits, consider how they handled the news. Wang and Ashton-Tate elected to take the big hits all at once, come clean with their customers and lay out their survival strategies, for better or for worse.

Sun, on the other hand, dropped a bomb and then scurried for cover. No one is sure yet how serious the company's troubles are.

Wang and Ashton-Tate took the smart approach. In a mature industry, the major players own up to bad business times and make the cuts that need to be made. Big steel and automotive companies found out years ago that it doesn't make sense to take scissors to the operating budget when an ax is needed. They also learned that bad times present the opportunity to reevaluate the business and structure it better.

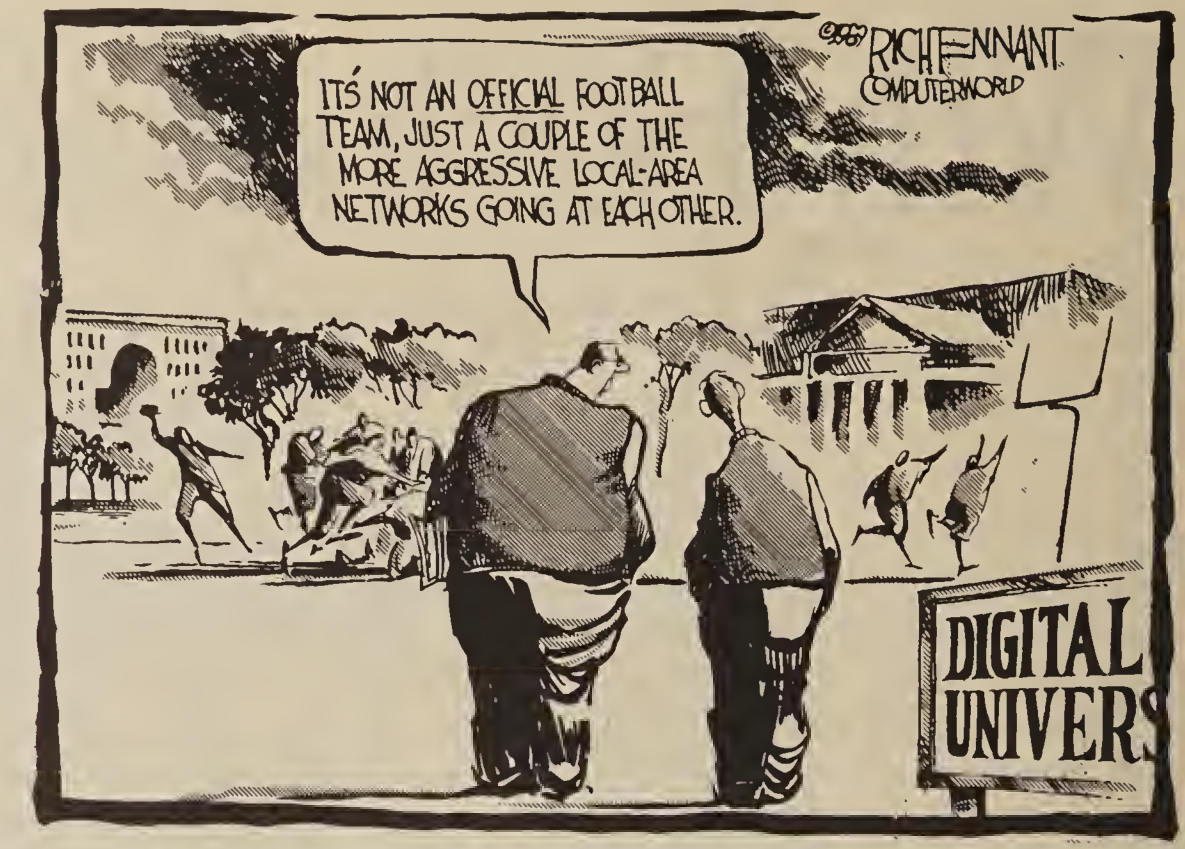
The computer industry isn't there yet. Perhaps it is the history of 35% annual growth rates and the accompanying perception that failure — any failure — is catastrophic. Perhaps it is the stock market's tendency to group high-tech stocks in one amorphous lump, which it seizes or dumps at the drop of a dividend. But these are attitudes that must change.

Ashton-Tate's troubles do not spell the end of the company. Dbase will continue to be the market leader, though its margin of leadership may shrink. Now that the firm has admitted its mistakes and vowed to do better, it probably will. Users may not be happy with the company's moves last week, but at least they know where it stands.

Wang's customers, meanwhile, are proving resilient in the face of their supplier's problems. While a recent *Computerworld* survey revealed that users are worried about Wang's financial problems, they're not rushing to cut back on spending [CW, Aug. 14]. Their loyalty is striking, given the depth of Wang's crisis.

Contrast that with Sun, whose financial bombshell was so unexpected that speculation and truth have since become indistinguishable. Lotus is still suffering from a history of raising customer and investor hopes and then missing key deadlines. Give Lotus Chairman Jim Manzi and Senior Vice-President Frank King credit: In the past year the company has decided to keep its head down and its mouth shut.

There is a lesson in this. When bad news can't be avoided, the best course is usually to face up to it. Customers have too much invested in their vendors to turn tail and run at the first sign of trouble. On the contrary, computer users are a strikingly loyal lot. It would be refreshing to see more vendors look for silver linings in bad business news instead of trying to hide the clouds.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NEWS ITEM: DEC OPENS "UNIVERSITY" FOR SALES FORCE TRAINING

LETTERS TO THE EDITOR

Cutting costs not all it's cracked up to be

I was shocked to read "Cost-cutting, revisited" [CW, July 17] in which you say that "you can consider two different approaches for improving productivity: implementing computer-aided software engineering (CASE) products or switching development languages." I thought that our industry was finally beginning to get beyond throwing technology at our productivity problems, but your story has highlighted my naivete.

What about quality? If we built systems properly in the first place we might not have a productivity problem. What about education? If our analysts knew how to do structured analysis and logical data analysis manually, maybe the CASE tools would not be perceived as panacea. What about methodology? If we forced ourselves to understand the problem before coding maybe we would not need new programming languages.

Also, what good will my historical line-of-code productivity knowledge base do me after I have switched programming languages? The story's lip service to Function Points only highlights the fact that we value the technology we use more than the function we deliver.

If we're serious about productivity, let's move on to cost-quality as our industry-preferred metric. If we'd stop wasting money on nonconformance and start investing in conformance, we wouldn't have a productivity problem. Quality's not the problem — it's the solution!

Richard E. Biehl
Senior Consultant
Data-Oriented
Quality Solutions
Pequannock, N.J.

I found "Cost-cutting, revisited" to be a disappointing and overly simplistic approach to measuring and improving developer productivity. Counting lines of code (LOC) remains an archaic measure of productivity; this is particularly so in older systems where it often exhibits an inverse relationship to functional effectiveness.

Counting Function Points may yield better productivity factors than LOC, but regardless, the evaluation of these factors against future options was flawed and superficial.

To suppose that CASE might be implemented with immediate productivity gains and a two-year payback is pure fiction. The culture change and the front-end investment required to establish an effective data architecture can take two years alone. This effort is typically followed by an extensive learning curve while developers are taught to properly utilize the accompanying structured techniques.

The comparison of Cobol to SQL is unfounded. In most application programs, SQL represents a subset of code primarily associated with I/O functions. It is unreasonable to assume that productivity gains based on the low LOC required for SQL will impact 50% of program functions. Were SQL compared instead with another database access method, the benefits would not be nearly so dramatic.

In sum, any evaluation that measures code volume to the exclusion of appropriateness and effectiveness for the function is measuring the wrong thing.

Denise Modrick
Modrick Consulting
Collegeville, Pa.

True distribution

This is in response to your story "Oracle Version 6.0 covers the distributed data 'bases' " [CW, June 26]. Lately, there appears to be quite a lot of confusion in the industry over just what represents a truly distributed database. Some observers may rightly say that the ability to access data from a remote server location for purposes of a query qualifies an engine to be properly called distributed.

I believe a much stronger argument can be made that in order to be truly distributed, an engine must also be able to update data in remote servers, while ensuring data integrity and concurrency.

Furthermore, such updates must be authorized, and they should also be transparent, in that neither the application nor the user need know in which server location the desired data resides.

If cost considerations are important, it is essential that such systems be able to access data directly from other remote LAN database servers without being force-routed through a mainframe. Therein, some highly regarded people believe, lies the single biggest threat to IBM's growth plans for their mainframe product line.

P.E. Borkovitz
President
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Curious alliances for information

AMY D. WOHL

Recently, the press has hinted that a curious alliance is under way. Nintendo, the Japanese game manufacturer, and AT&T will combine forces, the press suggests, to provide a consumer service that allows householders to access a variety of information services from inexpensive, ubiquitous devices: Nintendo games attached to their TVs.

Intrigued, I investigated. AT&T says it is more interested in other strategies, especially the delivery of audio information through your phone (for which they have already filed a petition with the Federal Communications Commission). Nintendo, AT&T firmly explains, approached them as a prospective customer interested in buying telephone services to support a Nintendo project. Nintendo wouldn't comment but suggested that in a few months things would be clearer.

Information services are nothing new. Banks, for instance, have long tried to offer personal computer users a variety of home banking and other services. Few have succeeded in reaching a critical mass of subscribers. Most users find the service too expensive relative to any perceived benefits. Many information services providers find that most of their customers are businesses rather than households.

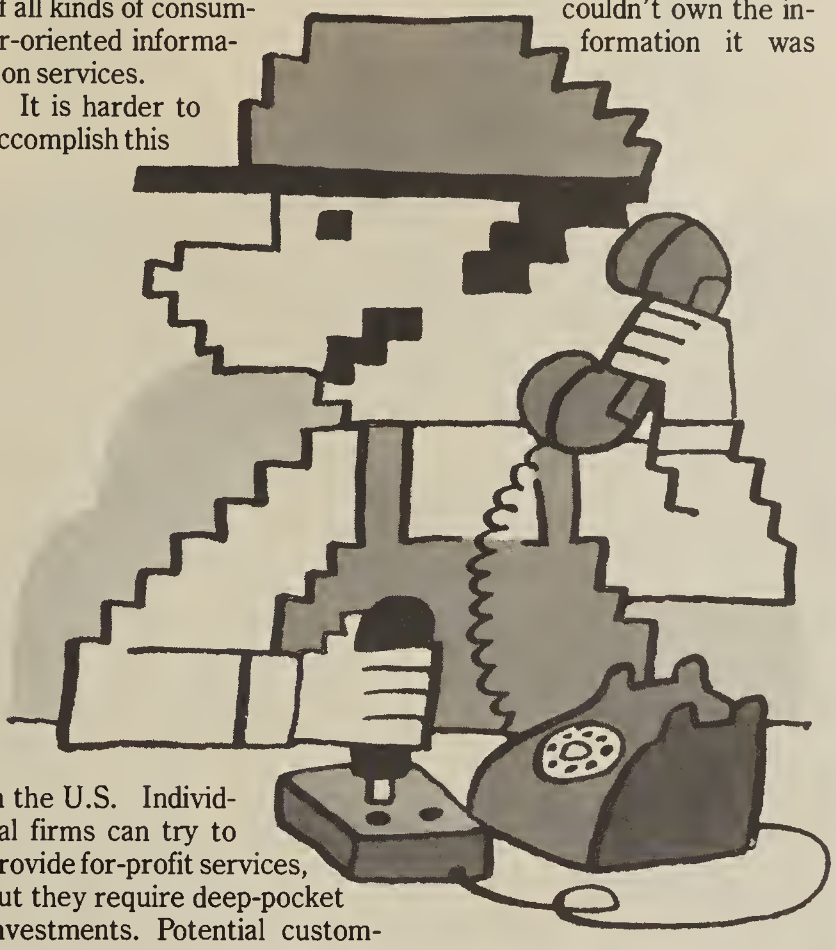
IBM and Sears are doing well with Prodigy. After seven months of general distribution, they have 75,000 subscribers in more than 10 metropolitan areas. They expect millions of users by mid-1990.

Will this work? I wonder. Information services are a classic "chicken and egg" problem, reminiscent of the early days of TV. Consumers said they would buy TVs as soon as there were enough good programs (one could argue, of course, that this never happened). Producers claimed they would be able to afford more programming when the installed base of TVs reached critical mass.

Somehow, it happened. Of the 91.1 million households in the U.S., 98% now have at least one TV (compared with 92.9% that have telephone service).

It could be that way for information services. They may just wobble around, and suddenly some breakthrough (much cheaper PCs perhaps?) may carry through to a different kind of America, where dialing up for information — and acting on it — may become a common household activity.

The French government experimented with the potential of such information services by providing free terminals that permitted the elimination of directory services. Once in place, these terminals provided a critical-mass platform for the growth of all kinds of consumer-oriented information services.



It is harder to accomplish this in the U.S. Individual firms can try to provide for-profit services, but they require deep-pocket investments. Potential customers must buy into these services by investing in some kind of computer workstation when the value of the service is still pretty small. Growing a customer base requires big investments in direct mail and other forms of consumer marketing.

AT&T's efforts to provide information services have been impeded by the consent decree of 1982. Soon the ban on AT&T's joining the electronic publishing market will expire. But District Judge Harold H. Greene must review and approve AT&T's current request to enter the information services market. Currently, AT&T could provide an information service, with FCC approval, but it couldn't own the information it was providing. With full approval from Greene and the FCC, AT&T is likely to become a major provider of such services — and a major competitor for IBM and Sears' Prodigy service.

AT&T intends to start with phone-based services. This seems natural — nearly everyone has a phone (and can use it), while computers are not yet common household devices. Prodigy, for instance, supports only IBM-compatible Personal Computers. Users of millions of Apple, Commodore, Radio Shack and other PCs aren't included.

With 16 million households as users, the Japanese game maker already has a potential installed base of critical mass. The questions remain:

Are they the "right" households? That is, are they middle- and upper-middle-class households that will demand and pay for information services?

Can the Nintendo devices in place be used as is or with small and inexpensive upgrades, or do they need extensive and expensive add-ons or replacements?

If the devices can be used as is or with inexpensive plug-in enhancements, Nintendo has a real chance at this market. Otherwise, they have name recognition as a premier game manufacturer and not much else.

What will the services cost? Nintendo seems to be looking at AT&T to provide the communications glue. But the point of information services is information. Will Nintendo have such a large customer base that it can command and pass along big discounts, finally making electronic information cheap enough to be a mass market? Or do they intend to provide their own information?

The information age is upon us. Knowledge is power, and those of us with access to knowledge are the empowered. Is it time to share this bounty? Are users ready to recognize and pay for information? And wouldn't it be ironic if, after all the failed attempts at providing this service, a gamemaker — and a Japanese one to boot — finally got it right?

Wohl is president of Wohl Associates in Bala Cynwyd, Pa., and editor of "The Wohl Report on End-User Computing" newsletter.

Redefining marketing for the technology age

BY REGIS McKENNA

Ten or 20 years ago, life was simpler. We saw less competition in all areas of business. We sold to defined categories of customers all neatly targeted and accessible. All goods were commodity-like. Customers were statistics. We sold computers to people who understood computers or, at the very least, knew what computers were capable of doing. Technology was limited and limiting.

However, the events and patterns of history have created an entirely different world. How do we define the computer business today? We have seen the rise of several thousand computer companies in the past 20 years. In addition, the definition of the business is changing as we enter the so called "information age."

Companies that were in a totally different business, but related to the subject of data or information, have become players in the computer revolution. Everyone in business today defines their business in terms that encompass information. And the tools to effectively use that information come from increasingly diverse sources.

All this change calls for new and innovative ways to approach marketing. In a world that is changing so rapidly and is increasingly competitive and unpredictable, we must look for new ways to do just about everything. Our old patterns of thinking have to change.

Beyond our personal use, the computer is changing the way we work, think, build and distribute products. It is changing the competitive makeup of every industry. It is changing the face of marketing.

Alvin Toffler said in the book *Future Shock*, "We will soon see the day when diversity will cost no more than uniformity." Computers, of course, are at the heart of diversity. And diversity is the most significant element causing dramatic changes in our businesses and personal lives. We are finding that the world is becoming more diverse in just about every dimension.

There is more of everything. Conventional wisdom says that all industries are supposed to shrink to a few. Yet, in the world today, we have more computer companies, more automobile companies, more cookie companies and more ice cream companies.

We've seen an increase from 700 to almost 1,500 computer companies during the last 10 years. When I was in the semiconductor industry in the early 1960s, there were fewer than 90 semiconductor companies. Today, there are more than 300 in the U.S. alone. I can remember interviews, 10 or 20 years ago, with presidents of companies saying, "This industry is too capital-intensive for there to be new competitors to enter this business." I remember industry leaders saying the same thing about the personal computer industry in the mid-1980s.

We now have a myriad of computer markets. There are at least two or three start-ups per week in the computer business. In about ten years from now, we will see more computer companies than we see today, because the underlying technologies are making it easier and easier for companies to get into and diversify the business.

> BEYOND OUR PERSONAL use, the computer is changing the way we work, think, build and distribute products. It is changing the competitive makeup of every industry. It is changing the face of marketing.

The computer-aided tools of diversity are allowing us to produce more solutions for narrow segments of industry or society than was economically possible before. The average number of items available on the grocery store shelf, for example, has doubled in the last 10 years, increasing from approximately 10,000 items to almost 20,000 items. Computers not only help produce more varieties of goods and services, they enable us to handle increasing numbers of products through distribution and channel management systems.

We see increased options and choices as individuals and as businessmen. Along with the increasing numbers of things, a certain sameness exists. There is less perceived differentiation.

Continued on page 22

McKenna is chairman of Regis McKenna, Inc., an international high-technology marketing consulting firm. He is also a noted author and venture capitalist.

McKenna

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"Choice" is rapidly replacing "brand" as the premium consumer value. The Achilles' heel of "choice" is consumer fickleness. With increased options, the consumer gains the power of choice. Thus we see the rise of "other" dominating the largest market share for personal computers, pharmaceuticals, gate arrays, software, jeans, beer, bottled water, ice cream and even cookies.

Obstacle illusion

Daniel Boorstin, the librarian of the U.S. Congress, says that "the great obstacle to progress is not ignorance, but rather the illusion of knowledge."

In this whole area of information, we often take the information available to us, but we don't make the right judgments. We don't draw the right conclusions from it. It's not being in the information business that makes us successful — it is understanding, and it is knowledge of the customer, knowledge of the business, as well as knowledge of the competiton that makes us successful.

We can have reams of data on competitors, but it doesn't always make us more competitive. We can have reams of information about our customers but it won't necessarily help us to integrate the customer into our business. After the space shuttle disaster, I heard a NASA official on television say, "We were so overwhelmed with data, we lost sight of common sense."

In this regard, we must reevaluate the meaning and substance of marketing. We are so deluged with information today that everything begins to sound alike. Not too long ago we thought that "quality" was a box on the production chart that gave the "go" or "no-go" to the final product. Then we began to learn that quality was a process that enveloped the whole business from the chairman of the board to the telephone operator.

I see marketing as the same process. Marketing is the way you do business. In an age when the consumer can be deluged with options and has innumerable choices available to him, customer loyalty must be achieved within a new context.

We have to look at our businesses as not just purveyors of data or purveyors of information. Marketing is a corporate learning process. We are constantly learning things, and learning doesn't mean that I send out more information or that I set up a more efficient network that allows information to flow more freely.

Integrate information

Now, we must think about how people are going to use that information to gain knowledge, to understand and make decisions, to participate in and "feel" a part of a particular business. We have to learn how to integrate people into the information system. Systems must become interactive and integrate the customer as a key player in the process. Integrating a customer into your environment transforms their view, their knowledge, understanding and commitment to you.

I don't know of a technology business that was built on mass promotion. Every technology that I've been involved with was built by market education, the development of people, through seminars, training programs, working with the customers and development of references. Many technology products take a relatively long time to develop. They aren't instant successes.

The average individual is exposed to over 2,500 commercials per day. We're exposed to so much information that we dismiss it. But you do remember experiences. Businesses must begin to understand and market as if they were service businesses.

The product now becomes the person who represents it, the tangible evidence you leave behind, the future of the product, the references, the competitive advantage it provides and the improvement in our way of life. This new world isn't going to be easy. It was much easier to think about marketing as a laundry list of things and promotions done to gain recognition. However, "acceptance" is the new challenge, not just recognition.

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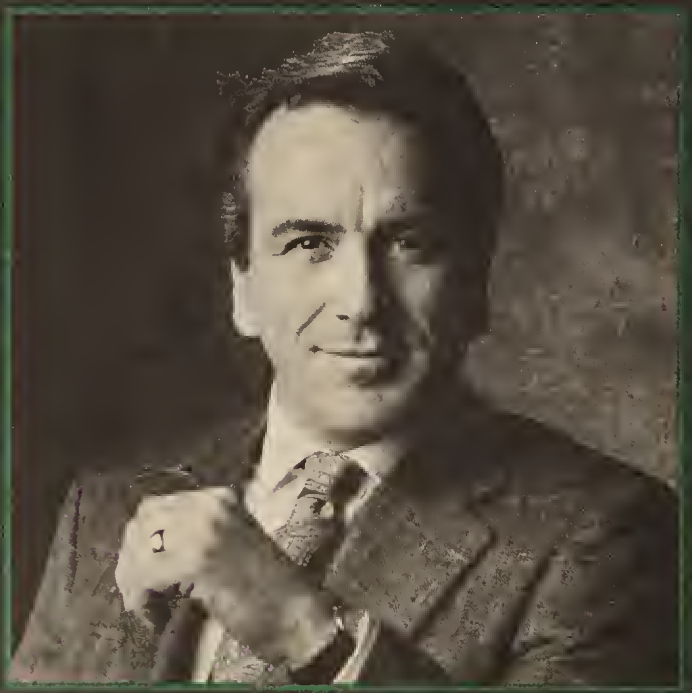

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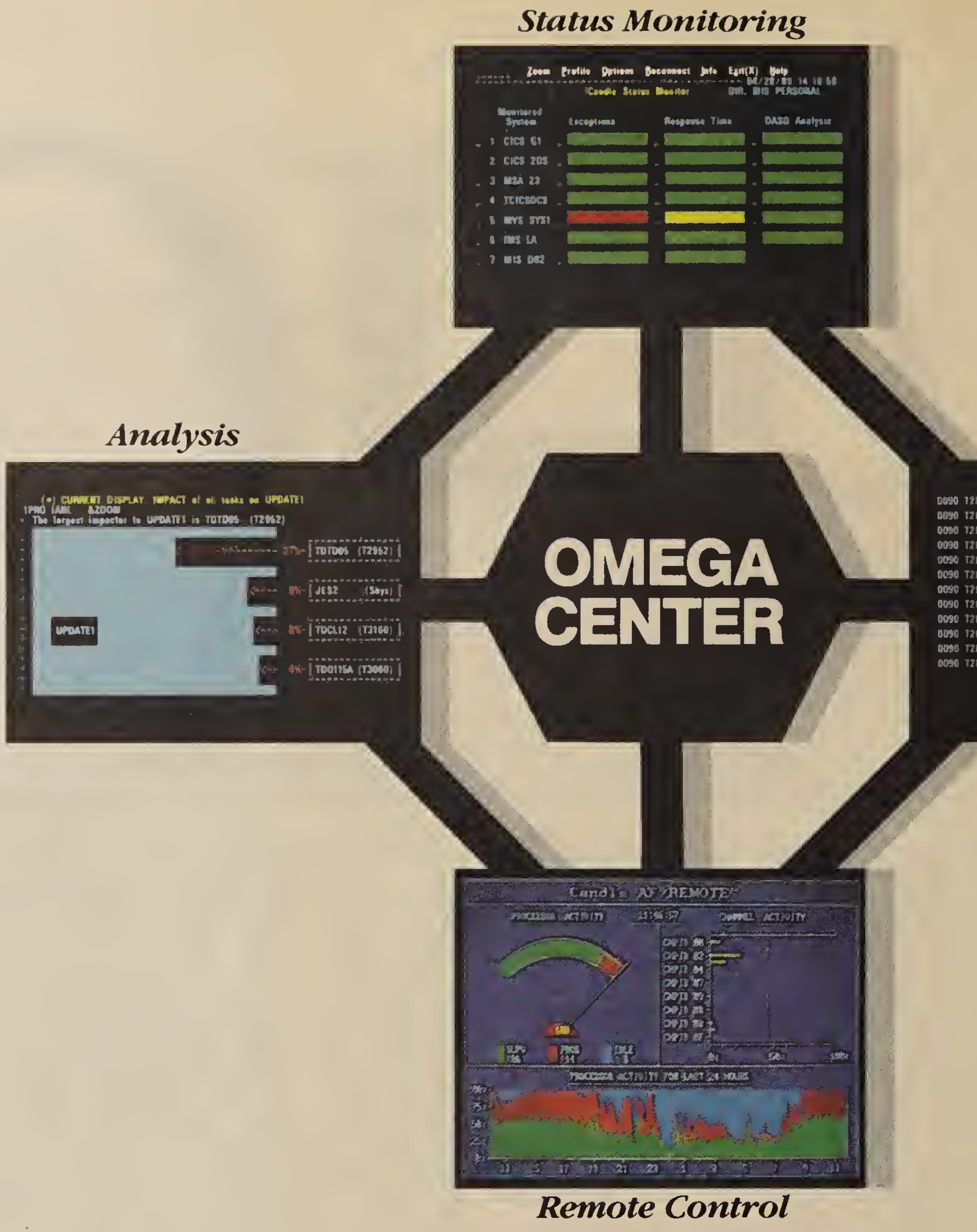

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SYSTEMS & SOFTWARE

HARD TALK

J. A. Savage

Life after Boy Scouts

"Suburban Fathers on the Rampage," "Boy Scouts Go Heavy Metal," "Beaver Cleaver's Big Adventure."

These aren't the titles of cult movies like "Attack of the Killer Tomatoes."No, they are phrases that have been used to describe the formerly stodgy Hewlett-Packard. (OK, I made up the heavy metal part.)

While HP's new image doesn't have quite the flamboyance and bluster of Sun Microsystems' marketing department, HP is taking its cue from Sun's success.

Nearly every business success lies in marketing. Reliability and word of mouth will only get you so far. Stockholders don't cash their check on reliability. So, after six years of ironing out the fine points in its reduced instruction set computing-based Precision Architecture, HP is going beyond the quiet Boy Scout image and is flinging itself into the world of glitz.

It started about a year ago when the company gained confidence in Precision Architecture, once presented as just a way to build a faster minicom-

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PCM sites put off ESA until 1990

ANALYSIS

BY J. A. SAVAGE
CW STAFF

Despite analyst convictions that 50% of the mainframe market will install IBM's MVS/ESA operating system by the end of the year, users of IBM plug-compatible mainframes contacted by *Computerworld* appear to be putting the move off for at least one year.

Analysts such as Bob Djurdjevic, president at Phoenix-based Annex Research, and Mark Hess, an analyst at the Gartner Group, Inc. in Stamford, Conn., said that Enterprise Systems Architecture (ESA) is taking off among mainframe users. They subscribe to the 50% ratio by early 1990.

The catch, according to Bonnie Digrius, an analyst at Santa Clara, Calif.-based Infocorp., is that the total number of plug-compatible users in the IBM 370 architecture market is low — perhaps 20% — and most have smaller size and older machines, such as those associated with IBM's 4381- or 3080-class mainframes. "There's no reason for them to get on the bandwagon," Digrius said.

An IBM world, but . . .

The high-end mainframe market, MVS/ESA's target, remains IBM's realm, but Amdahl and NAS are catching up

	Jan. '87	Jan. '88	Jan. '89
Amdahl 5890, 5990	2%	7%	9%
IBM 3090 series	97%	90%	88%
NAS AS/XL, EX	1%	3%	3%
Total estimated population:	1,419	2,709	3,981

SOURCE: COMPUTER INTELLIGENCE

CW CHART: DOREEN DAHLE

Users of IBM plug-compatible machines from Amdahl Corp. and National Advanced Systems — two companies that demonstrated their ESA implementations within the past month — said they will eventually migrate to ESA but are not convinced of the benefits in the short term.

"We're not completely convinced of the benefits to us right now," said Pat Cleary, manager of computing services at Unocal Corp. Refining and Marketing in Schaumburg, Ill., which has an Amdahl 5890. "We're waiting for IBM to drop some more shoes," added Unocal's Jim Hall, general manager of information services.

Most users have said that they do not see a clear effect on their businesses from ESA. "ESA is not in the plan until 1991 or '92. You can pay the price now, but what will it get you?" said Dick Goodspeed, vice-president of information services at North American Van Lines, Inc. in Fort Wayne, Ind. "We also recognize that it is the future, but at that point, the prices will be down," said Goodspeed, who uses an older Amdahl

Continued on page 32

Geographic info systems span the globe

URISA conference features latest GIS products for urban technology

BY MARYFRAN JOHNSON
CW STAFF

BOSTON — The expanding world of geographic information systems (GIS) was evident at the recent annual Urban and Regional Information Systems Association (URISA) conference, where 2,000 to 3,000 attendees got a look at the latest in hardware, software and services.

Emphasizing the role of GIS in urban technology, the four-day convention featured 75 exhibitors offering products in everything from database design, land records and infrastructure management to systems integration and regional planning.

Among the products and partnerships unveiled at the conference were the following:

- Tydac Technologies Corp. in Arlington, Va., announced a business partnership arrangement with IBM to market Tydac's Spans GIS under DOS on IBM's Personal System/2 line. Billed as an advanced analytical tool, Spans was designed for stand-alone desktop workstations and includes data integration, analysis and modeling capabilities.
- Pledging to deliver a "county in a box" turnkey GIS, Atlanta-based Erdas, Inc. announced its partnership with Spot Image Corp., Eosat, Geographic Data Technolgy, Inc. and STX Remote Sensing Services to provide the Erdas Databundle.

Aimed at local government users, the $75,000 product pro-

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Inside

- Financial Technologies saves money with IBM's PR/SM. Page 29.
- Symbolics catches up. Page 32.
- Natural language interface for VAXs launched. Page 34.

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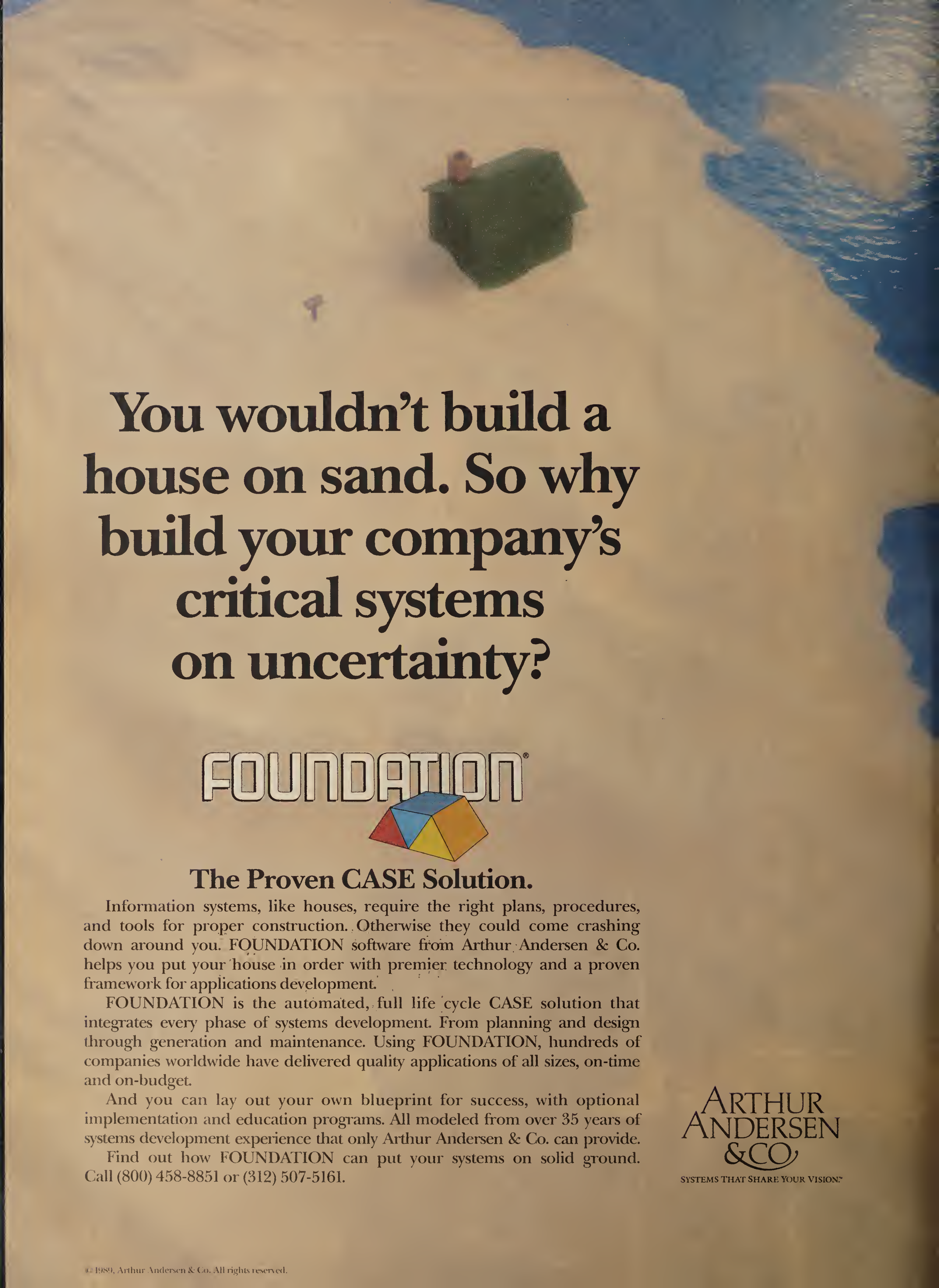

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SOFT TALK

Stanley Gibson

They came to praise DB2

"I dug IDUG." How's that for a button slogan to be handed to attendees of the recent first annual International DB2 Users Group meeting in Chicago?

OK, I'll stick to writing columns. But judging from the response of users to the meeting, many DB2 users did just that. The turnout at the meeting was 600 users and 140 vendors — about twice the break-even point for the organizers. That in itself was a success. And there was considerable interest in the technical sessions, many of which were well served by very informative speakers. The vendor contingent was of a healthy size, and users seemed to spend a good deal of time visiting vendors' displays. The turnout and interest was proof that DB2 has to be taken seriously.

The conference prospered despite the regrettable absence of Edgar Codd, who is known as the father of relational technology. Because of a serious fall, he was unable to attend and receive the career achievement award bestowed on him.

It was clear that users at the gathering who currently have DB2 are happy with it for several reasons: They praise its ease of use and relational characteristics and say performance

Continued on page 33

From three mainframes to one with PR/SM

ON SITE

BY STANLEY GIBSON
CW STAFF

CHANTILLY, Va. — A young bank service bureau is keeping a lid on high hardware costs by using IBM's PR/SM partitioning facility on an IBM mainframe.

Financial Technologies, Inc. had three IBM 370 architecture mainframes but was able to replace them with one 3090 Model 180S using PR/SM partitions.

Frank Leser, president of Financial Technologies, terms his partitioned 3090 a "computer condominium." The single mainframe now runs two partitions under MVS/XA and one under VM/SP with IBM's high-performance option. The first partition runs MVS in production and uses an average of 70% of the CPU. The second runs VM and uses 25%. The third, using the remaining CPU capacity, also runs MVS and is used for testing.

The operations staff monitors CPU use in each of the PR/SM partitions with Candle Corp.'s Omegamon-CICS. "We can change the bias on the fly," Leser said, explaining that the size of each partition can be increased or decreased to match required utilization.

"When VM asks for resources and MVS doesn't need them, VM can use them," Leser said. "The condominium approach allows us to make the cycles available as needed." He praised PR/SM's ease of use. "It's PC-like," he said.

Financial Technologies saves money not only on hardware but also on software. It is less expensive to license software for one CPU running in several partitions than to pay multiple software licenses for more than one CPU. There are labor savings as well, Leser said, as operations staff needs to keep up fewer operating systems.

The downside, according to Leser, is that he must pay a higher license fee for a CPU in a more expensive graduated pricing category. But that higher fee does not erase the net savings. "They would have had to jack up the price a lot to do away with the intrinsic advantages of PR/SM flexibility," he asserted.

K.A. BROWN

Leser (left), *Vincent DiStefano, Jake Jacobstein save resources*

Consolidation

Financial Technologies currently runs a 3090 Model 180S and will add another 180S to that to create a 280S. The company plans to operate eight PR/SM partitions with the Model 280S. The bureau will be moving a number of applications now on two of Unisys Corp.'s former Burroughs Corp. systems onto the enlarged processor. Thus, the work that had been performed by five CPUs will eventually be accomplished on one.

Formerly the division of the Pentagon's information systems department that handled processing for the credit unions of the armed forces, Financial Technologies was founded in 1984 as a wholly owned subsidiary of Pentagon Federal Group, which is in turn owned by the Pentagon Credit Union. Three years ago, the firm moved to an all-new data center here constructed from Financial Technologies' specifications.

The firm offers remote computing services to credit unions, banks and other financial institutions in West Virginia, Virginia, Maryland and Delaware. A large chunk of the bureau's work is servicing the Defense Department's credit unions, which have offices worldwide.

Financial Technologies inherited the Unisys processors and its applications from the Defense Department. Thus, when the firm started up, it already had a prime customer and plenty of work from the Pentagon.

Financial Technologies is in the process of converting those applications to the Hogan Systems, Inc. applications it already runs for its other customers on IBM hardware.

"The IBM gear is extremely reliable, and the worldwide support is great," Leser said. Global support is important because the armed forces' credit union branches are scattered in many remote locations around the world. Strong support also mitigates the risk of consolidating applications onto a single mainframe, Leser pointed out. The firm also retains Sungard Recovery Services, Inc. for disaster recovery protection.

In addition to Hogan banking applications, Financial Technologies also offers Management Science America, Inc.'s General Ledger, IBM's Professional Office System and text processing and computer-based training for tellers.

Both Hogan and MSA have, to different degrees, been taken under IBM's wing. Hogan software is sold by IBM, and IBM recently invested in MSA. "Having a large company stand behind a smaller one helps," Leser said. "When we saw IBM buy a little piece of the [MSA] business, we thought that was a good sign."

Down the road, Financial Technologies plans to move to MVS/ESA, which will offer the performance necessary to run IBM's Image Plus software, Leser said.

But as the central mainframe grows, remote terminals will gradually change to personal computers, offloading processing from the host.

In the long term, a move to distributed processing will make the 3090 into "a kind of giant network server," Leser said, with user screens being handled by intelligent workstations.

Popcorn, videos and a Microvax

ON SITE

BY MARYFRAN JOHNSON
CW STAFF

DALLAS — The last thing "America's Family Video Store" wants on one of its shelves is an X-rated movie.

That is one reason Blockbuster Entertainment Corp., the nation's largest video rental company, is outfitting each of its 750 stores with Digital Equipment Corp.'s Microvax 3100 system, announced in July.

"We need to manage the quality of the allowable inventory," said Wilbur Smithers, vice-president of information systems at Blockbuster's headquarters. "There are rules on what we want to rent in our stores."

But the most compelling reason behind Blockbuster's computerized operation is the competitive advantage it gives the giant video rental chain.

"Blockbuster stores are clear leaders in a very huge and fragmented industry," said Andrew Beja, an industry analyst at Advest Group, Inc. in Hartford, Conn. "This industry is not heavily computerized, and that gives Blockbuster a big competitive advantage. Their MIS systems are head-and-shoulders above everybody else, and these new systems they're planning on bringing on-line will just widen that gap."

Smithers called the Microvax 3100s "a key part of our expansion. They have bigger capacity, a smaller box, they run faster and they're cheaper," he noted. "They are also compatible with the hardware and applications software we are using now, so we don't have to make changes to present operations" from the Microvax 2000s.

The company has ambitious acquisition and consolidation plans, aiming for the 1,000-store mark by the end of the year. Currently, the highest concentration of its "superstores" is found in the Midwest and Southeast, Smithers said, but development plans include all the major metropolitan areas in the country.

The 3100 system will be used for point-of-sale processing as well as office management and inventory tasks. The individual stores will funnel information to company headquarters via Decnet, the networking software that comes packaged with the 3100 system.

At this point, the stores will communicate only with the main office, not with each other.

"We use Decnet in a dial-up polling mode to collect revenue and inventory information and to provide certain information back to our stores," Smithers said. "We're not on-line constantly."

In the beginning . . .

Blockbuster Video has been a DEC shop from the outset, with DEC hardware and software in all the stores. The oldest stores started off with Microvax IIs, then moved up to the 2000 line, Smithers said.

About half the company's stores are independently run franchises, but the film inventory is centrally controlled through IS headquarters.

With 1988 sales of $137 million, the company is expected to make "a huge jump" this year to $300 million or more in sales, Beja said. "There is no one else in their class," he noted. "The industry is ripe for consolidation, and they're doing it."

Low-cost computing power and efficient networking are the main selling points for the Microvax 3100 to retailing companies with multiple locations, a DEC spokesman said.

Retailing at a price of $8,480 for the minimum configuration, the 3100 is currently the lowest priced VAX with multiuser capabilities. The machine provides 2½ times the power of the Microvax 2000.

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February 1, 1989

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Doe & Partners
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Norwalk, CT 06856

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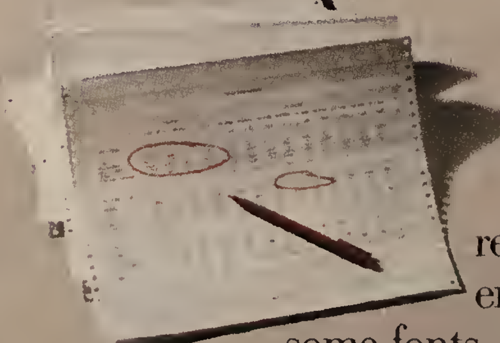

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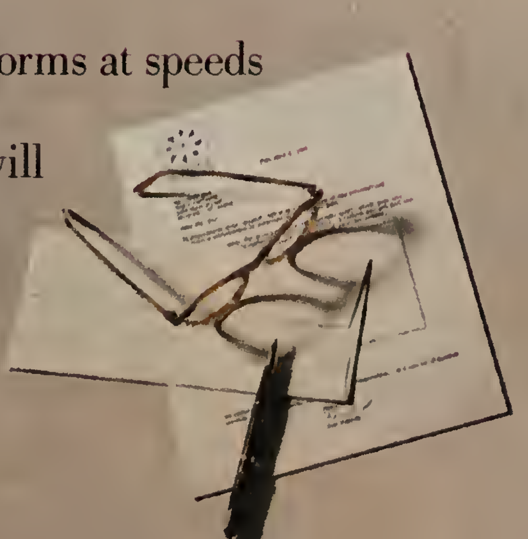

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IBM

Symbolics aims to make a place in the Sun

BY AMY CORTESE
CW STAFF

Only a year ago, it seemed that Symbolics, Inc. was doomed to share the fate of several other artificial intelligence firms that had not made the transition from specialized to general-purpose systems.

That reality was driven home when the troubled firm vacated its Cambridge, Mass., headquarters last year for more modest offices in Burlington, Mass., leaving its space to the Open Software Foundation, whose attempts to create an industry-standard operating system epitomized the trend toward open and standard systems.

Earlier this month, the rebounding AI firm took a step toward standards by introducing a plug-in coprocessor board for Unix systems vendor Sun Microsystems, Inc.'s Sun-3 and Scalable Processor Architecture-based workstations. This board will enable Symbolics' advanced software to run on the widely used machines.

The UX400S will be packaged with Symbolics' Genera object-oriented software environment and can be used with other software applications from the company to develop and run high-level AI applications.

The UX400S is the latest in Symbolics' next-generation product line based on the Ivory chip, essentially a LISP processor on a chip that can be embedded in conventional systems. The Macivory, a plug-in board for the Apple Computer, Inc. Macintosh, was unveiled last year, although a previous agreement with Sony Corp. to jointly market an Ivory board for its News workstation has been dropped.

The Ivory product line signals a move away from the firm's specialized, proprietary workstations that propelled it to the top of the AI market in the early 1980s. As Symbolics leaves the hardware to others, it is becoming more of a software company. "We realized our true value is in software," said Howard Cannon, Symbolics' co-founder and vice-president of product marketing.

The inclusion of a standard bus for its proprietary workstations and the marriage of the Ivory chip with conventional platforms are the first steps in the transition to a software company, said Bonnie Billings, an analyst at Boston-based Tucker Anthony.

Symbolics' software was designed for rapid prototyping of complex applications. In addition to the Genera environment, Symbolics provides an object-oriented database management system called Statice; Joshua, an expert systems development tool; and Plexi, an environment for constructing neural networks, among other programs.

The shift to conventional systems, along with moves taken to restructure the company, have apparently paid off, as Symbolics completed its fourth profitable quarter in a row in June following two years of losses.

The Ivory coprocessors running on conventional platforms will expand the audience for Symbolics' software. According to Sun, advanced AI applications are one of its fastest growing markets. Further, Symbolics officials indicated that more platforms are in store for the future.

A development version of the UX400S, including the coprocessor board and 20M bytes of memory, will be available in September for $21,000. A base model with 10M bytes of memory and the Genera software for application delivery is slated for October at a price of $13,900. The Genera development software is also available separately for $9,500.

ESA

CONTINUED FROM PAGE 25

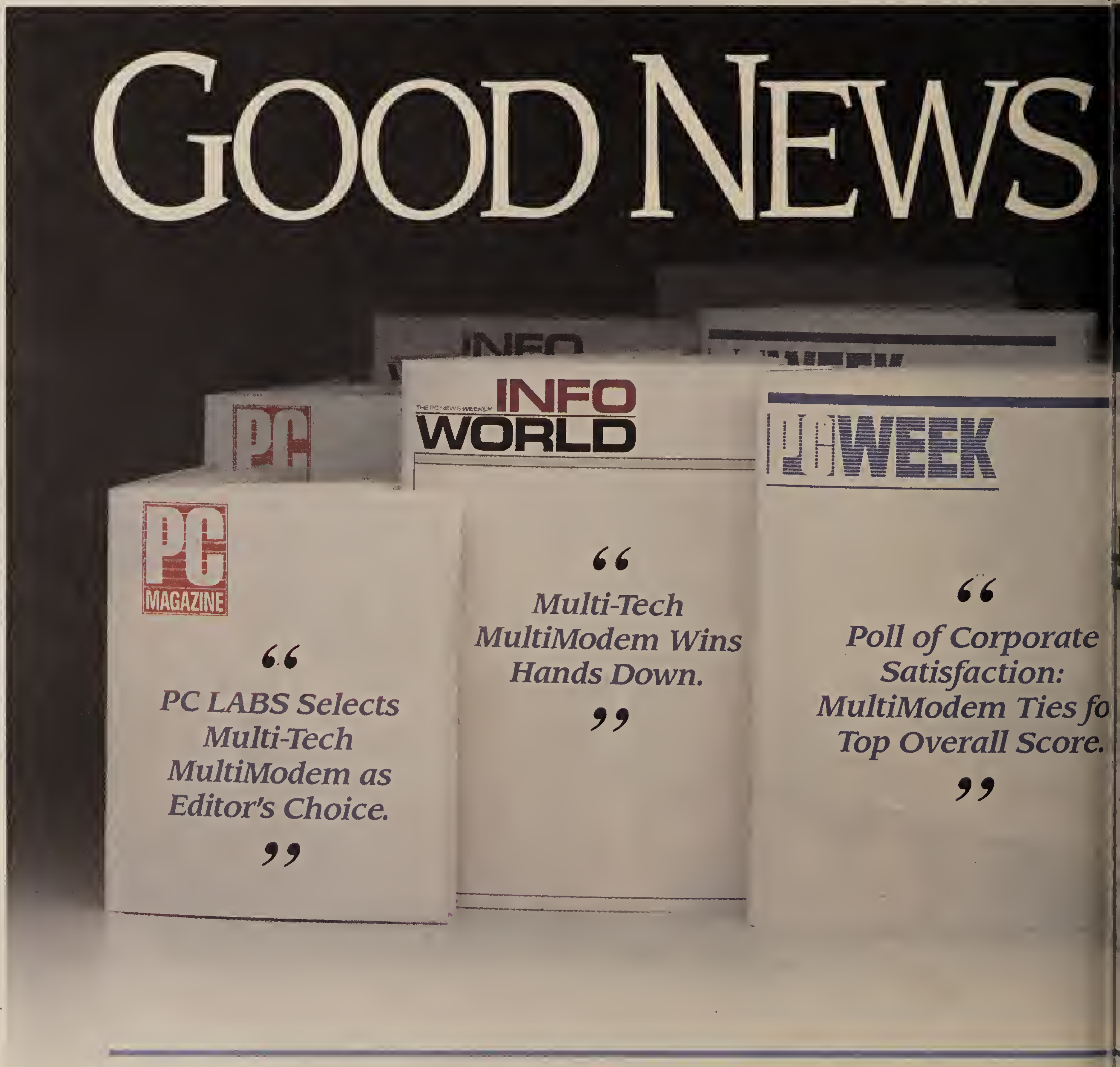
5870 mainframe.

Cost was a consideration with all the users contacted. "You may get an increase in performance of 3%, and you can possibly get a loss [of performance]. For another $4,000 a month, we don't need it now," said Bill Vetter, manager of the bureau of information and communications services at the Illinois Department of Central Management Services in Springfield. Vetter has an IBM 3090 600S, a 3084 and an Amdahl 5880.

"The benefits are out there, but it's not pressing," agreed Ralph McGonegal, director of information systems at Consumers Power Co. in Jackson, Mich. McGonegal has an IBM 3090 and an Amdahl 5880. He said that the company could use some ESA products, such as Home Address Spaces and Linkage Spaces, but he has found none that are compelling. Consumers are waiting until its systems become obsolete — McGonegal figures that will be about 1992 — before installing ESA.

Then there are users who would migrate to ESA if there was a way to get there. The city of Milwaukee has a NAS EX/30. Randy Guyer, city technical services manager, said his problem is that there is no reasonable migration path to ESA from the city's VM/VSE operating system. "We're trying to go from 1960 forward, not start all over," Guyer said.

While vendors and analysts see a whopping demand for ESA, the other 50% of users may not make the move until they have to.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PC MAGAZINE
"PC LABS Selects Multi-Tech MultiModem as Editor's Choice."
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"Multi-Tech MultiModem Wins Hands Down."
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Savage

CONTINUED FROM PAGE 25

puter. Then, armed with benchmark data, the sales division descended into the land of the potential customer instead of the comfy old installed base. Now HP sales reps are walking into information systems shops, some of which have little experience with HP minicomputers, and offering a spectrum of technologies.

This year, HP is speeding up the pace of transformation. Even if the salespeople aren't dressing for success in heavy metal rock style, the company has replaced those dull, green Boy Scout bermudas and is dressing in merger and acquisition style. When HP bought Apollo, it was the first significant merger for the company in 23 years, and the only major one since it branched into the computer business. Apollo, known for some whizzy technology, has lent HP some bright colors to add to its wardrobe.

Now, watch out. Nearly every new press release signals another "HP way" falling by the wayside.

Just in the last month, HP announced that it is licensing its Precision Architecture to two other companies, Samsung and Hitachi. Not only are they both foreign companies, but get this: One of them, Samsung, will be making the computers for HP to sell as its own. Talk about changing the if-we-don't-make-it, we-don't-sell-it philosophy.

Also in the past couple of weeks, I've seen some fast moves after a preliminary judgment in the Apple vs. Microsoft and HP lawsuit over the look-and-feel software interface. HP's object-oriented New Wave software, which indeed looks a lot like a Mac interface, was kept pretty low-key while the lawyers went at each other. But the July ruling said the interfaces were fair game because they were governed by an earlier licensing agreement. Now, HP is marketing its New Wave software through Canon in Japan, with Canon developing, in cooperation with HP, New Wave for Microsoft's MS-DOS, IBM's OS/2 and Unix for the Japanese market. Watch for HP to sign up more large — and foreign — distributors.

EVEN IF THE salespeople aren't dressing for success in heavy metal rock style, the company has replaced those dull, green Boy Scout bermudas and is dressing in merger and acquisition style.

Pretty soon the merit badges will be ripped off their chests. The little green hats will be stomped on. And little old ladies will have to jaywalk alone.

Savage is a *Computerworld* West Coast correspondent.

Gibson

CONTINUED FROM PAGE 29

is generally not a problem.

The attendees were, by and large, database administrators. In many cases, they had not made the decision to go with DB2 — that had already been made at a higher level. Instead, they had been given the task of implementing the software. Those who were just beginning to work with DB2 stressed that their companies need to examine the potential of relational technology to enhance current applications and create new ones that will be of strategic importance to their business.

The pitfall that many are striving to avoid, and that many of the conference speakers urged should be averted, is that of simply tacking SQL onto existing applications running on VSAM files. Such an approach fails to use relational technology.

The issue of DB2 performance, once irksome, has quieted, although some users said DB2's page-level locking is still a potential problem. In any case, IBM promises to put performance issues to rest once and for all when it announces the general availability of DB2 Version 2, Release 2 in the weeks to come. IBM said there are performance improvements in that version that have not yet been announced publicly. The version has reportedly been in beta testing since early this year.

In fact, although Version 2.2 has become known as the first step toward distributed DB2 because of its "multiple-site read/single-site update" features, it could become known more for its performance.

Users at the conference were distinctly lukewarm about the issue of a distributed relational database management system — they just aren't ready for that yet. So if the performance gains are truly impressive, it's likely users will remember the release for those merits.

The first IDUG meeting did have a few rough edges — mainly some users who were unaccustomed to giving presentations. Their delivery, subject matter and visual aids could not hold the attention of attendees. But it should be possible to correct that for next year's IDUG meeting, at which organizers are expecting about twice as many attendees.

It looks like DB2's day really has come.

Gibson is *Computerworld's* senior editor, software.

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Oracle touts Easytalk language interface for VAXs

BY JEAN S. BOZMAN
CW STAFF

BELMONT, Calif. — Oracle Corp. recently announced a new natural language interface for its relational database management system for Digital Equipment Corp. VAXs, agreeing to jointly market a natural language interface built by Intelligent Business Systems, Inc. in Milford, Conn.

Called Easytalk, the new product is one of several natural language interfaces offered through Oracle and is a combination interface/expert system. It was developed by IBS, which has its roots in research conducted at Yale University during the 1970s and early 1980s. Founded by artificial intelligence theorist Roger Shank and other Yale professors in 1983, IBS has received $26 million in venture capital from Xerox Corp. and Olivetti USA. Until now, the firm has met with limited commercial success, analysts said.

Easytalk was designed for nontechnical users who have had trouble building SQL queries using conventional pick-and-point interfaces. "Relational database companies have made it easier for technicians to build and maintain databases," said Steven Shwartz, senior vice-president of advanced development. "But it's almost impossible, without understanding the structure of that database, to ask any question about the real world and get a simple SQL statement."

The new software will interpret an end user's English language queries and convert them into SQL statements through an underlying expert system. Initially, the interface will run only on VAXs under VMS, but Oracle plans support for other platforms.

Key approach

The main IBS approach is its use of the natural language interface to generate a "meaning representation." Once the meaning representation is created, it can be used to navigate multiple Oracle DBMSs scattered over a corporate network.

Sample questions that can be asked through Easytalk include the following: "Show the 1988 budget for the Northeast Region" and "Give me this year's and last year's expenses for the Northeast Region by department." If the expert system is not clear on the query's meaning, it will prompt the user to ask the question differently, Shwartz said.

IBS' system differs from the rest of the handful of commercially available natural language interfaces, said AI software analyst Ken Sonenclar, chairman of New Science Associates, Inc. in Southport, Conn. "IBS has tried to combine these technologies to solve business problems. But some have considered the Yale professors as renegades in the AI arena because of their approach," Sonenclar said.

Geographic

FROM PAGE 25

vides hardware, software, training and data needed to begin building a GIS. The package, which is available for shipping now, includes both Erdas and PCarc/Info software on a Compaq Deskpro 386/25 with graphics monitor, digitizer, plotter and printer.

- Erdas also announced the release of an advanced image-processing capability for personal computer users with its Multivariate Image Analysis module for data evaluation techniques in the geosciences and chemical image analysis. The product, which costs $3,900, is available as an add-on module to Erdas-PC users.
- McDonnell Douglas Corp. in St. Louis announced the addition of polygon processing capabilities to its GDS infrastructure management software package. The PCN Spatial Modeling System, scheduled to be released early next year, enhances the database capabilities of GDS for large, topologically structured databases.
- Intergraph Corp. in Huntsville, Ala., announced the availability of its Unix workstation-based software for surveying data collection. The new product, Insurv, links computer-aided design and engineering and GIS/facilities management systems to provide data for a range of engineering projects handled by Intergraph's transportation design software. It costs $3,000.
- Intergraph also set April 1990 as the delivery date for a computer-based mapping system to assist with transportation management. The Cadmap/Dispatcher, priced at $20,000, will initially be marketed to public safety agencies for their 911 emergency dispatch centers. Four other modules in the Cadmap line run the gamut from $5,000 to $60,000 for a workstation license.

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NEW PRODUCTS — SOFTWARE

System software

Phoenix Technologies Ltd. has announced a workstation version of its Phoenixpage systems software.

Phoenixpage reportedly performs printer management functions typically handled by a laser printer's controller,' thereby permitting the user to have full functions of such standards as Adobe Systems, Inc.'s Postscript while using a lower cost laser printer. Requirements are said to include 2M bytes of random-access memory, AT&T Unix System V, Release 3.2 or equivalent, a small computer systems interface and a printer driver. The software is aimed at the OEM market, and the price depends on quantity sold.

Phoenix Technologies
846 University Ave.
Norwood, Mass. 02062
617-551-4000

Adollar Software announced software for IBM Application System/400 and System/38 sites that instantly answers QSYSOPR messages that cause job halts and executes commands when these messages arrive.

Supermon, or Night Operator, addresses messages for printer form changes, batch job errors and the overflow of spool and physical files; restores communications to remote sites after failures without terminating active jobs; and has a time-delay option to allow operators to answer first. The license costs $495 with a 30-day free trial.

Adollar Software
P.O. Box 898
Myrtle Beach, S.C. 29578
803-236-5527

Utilities

Universal Software, Inc. announced Release 1.7 of VSAM-Lite, its automatic file compression package for the IBM VSE/SP operating environment.

The disk management product was enhanced to include an improved method for managing VSAM-Lite files in multiple CPU and VM/VSE environments, the vendor said.

The software is priced from $7,500, depending on the user's configuration, according to the vendor.

Universal Software
Brookfield Office Park
Brookfield, Conn. 06804
203-792-5100

Development tools

Concurrent Computer Corp. has released Laboratory Workbench Version 2.0, an object-oriented, icon-based software package.

The product was developed to simplify establishing and controlling high-performance data acquisition modules and real-time Unix signal processing computers, the company said. Enhancements include an "invisible mode," which reportedly allows the software to perform data acquisition and analysis as a background operation. The program runs on all the company's 5000 and 6000 multiprocessing systems.

Prices range from $3,000 to $4,900, depending on configuration.

Concurrent Computer
106 Apple St.
Tinton Falls, N.J. 07724
201-758-7000

Sage Software, Inc. announced the second generation of its APS/PC Workstation, Release 1.8.

The software was designed for mainframe-oriented developers migrating to the personal computer workstation environment. The latest release reportedly provides Intel Corp. 80386-based architecture, a full-function IBM ISPF platform and shared dictionary support in local-area network environments. The product is targeted at IBM's ISPF, CICS and IMS/DC applications that access DB2, IMS/DB and VSAM data structures.

It is priced at $7,500 per developer.

Sage Software
3200 Tower Oaks Blvd.
Rockville, Md. 20852
800-638-8703

American Business Computer (ABC) Development Systems, Inc. released a report generator and query language for use with IBM System/36 Model 5362 RPG-II applications.

Called On-Q, the software reportedly provides a report writer, an English query language system, a graphics package, reporting tools and file-transfer capabilities. The product runs on the IBM Personal Computer and compatibles and requires a hard disk. Pricing ranges from $500 for a single-user system to $1,500 for an unlimited-user system, the vendor said.

ABC Development Systems
Suite 260
3433 Broadway St. N.E.
Minneapolis, Minn. 55413
612-331-8844

DSA Software introduced an ANSI standard-compatible C source-code generator. Complementing DSA's Cobol and Pascal generators, the C generator reportedly executes under the personal computer-based user interface for DSA Version 2.6.

According to the company, the programming tool produces compiler-ready, error-free, documented source code for use on personal, mini and mainframe computers from a variety of companies, including IBM, Digital Equipment Corp. and Wang Laboratories, Inc.

The price for the single-user version is $2,750; a multiuser version is available, the vendor said.

DSA Software
Suite 209
202 S. 22nd St.
Tampa, Fla. 33605
813-248-1217

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PowerMate 286 Plus

The new PowerMate 286 Plus goes even further. It's a high speed 12 MHz, 0 wait state machine. And the NEC engineers have fully integrated the mouse, serial and parallel ports and VGA graphics on the motherboard. Which frees up its 5 expansion slots for greater customization (and greater sales). As for memory: 1 MB standard, expandable to 16 MB.

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PowerMate 286

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PCs & WORKSTATIONS

MICRO BITS

Michael Alexander

Big Apples aren't sweet

The word on the street is that Apple Computer will officially introduce its much-anticipated portable Macintosh Sept. 20. Those who have already seen the machine say that it won't be worth the wait.

The portable will be priced at $6,500 with two megabytes of random-access memory and a 40-megabyte hard disk drive, according to company insiders. It will apparently weigh about 15 to 17 pounds and will be named — no surprise — the Macintosh Portable. The name is not catchy, but it does the trick, I must admit.

The Macintosh Portable sports a black-and-white LCD, although it lacks backlighting, I hear. The display uses active matrix technology that will go a long way toward boosting contrast.

This is what we've all been waiting for? A portable that weighs 15 or more pounds and sports a $6,500 price tag? Anyone who has to travel regularly knows that with the usual two-suit carry-on bag in one hand and a briefcase in the other, anything more than 10 pounds

Continued on page 42

IRS laptop gains not realized

Move to Zenith portables didn't boost efficiency, government study finds

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — When the Internal Revenue Service awarded a highly publicized contract for 18,000 laptop microcomputers in 1986, the IRS thought the portables would make its field auditors so productive that newfound tax revenue would come pouring in.

But due to serious software development problems, those productivity benefits have not been realized, according to a study by the U.S. General Accounting Office (GAO).

The contract award to Zenith Data Systems, a unit of Zenith Electronics Corp., was the largest single purchase of laptop computers ever reported [CW, March 3, 1986].

The GAO cited problems with the custom software used for examining Form 1040 returns on the laptop micros. The first version of this software, delivered to revenue agents in July 1986, was extremely cumbersome because it required agents to juggle 18 different diskettes to perform an audit, the GAO reported.

A May 1988 study found that 77% of the revenue agents were dissatisfied with the software, and only one-third actually used it. Another study quoted field managers as expressing serious doubts that the software could ever save the agents time in performing their work.

Responding to these concerns, the IRS revised the software and has now fielded a second version that performs the same functions using seven diskettes.

Another problem was caused by the change in the programming language used for the custom software. Although the IRS had approved the use of Turbo Pascal, it reversed its position after the software had been written because it did not want to retain programmers skilled in Turbo Pascal, the GAO said. The IRS is now rewriting the software in the C programming language and has completed about one-third of it.

The IRS has spent about $36 million on the laptop micros portion of the Automated Examination System (AES), an integrat-

Continued on page 46

Plans gone awry

The IRS' original cost estimate for the Automated Examination System — now six years behind schedule — was off by $800 million

Date of estimate	*Estimated costs*	*Estimated benefits*	*Scheduled completion*
May 1985	$1 billion	$16.2 billion	Fiscal 1989
January 1987	$1.2 billion	$42.7 billion	Fiscal 1991
March 1988	$1.8 billion	$16.2 billion	Fiscal 1995

SOURCE: U.S. GENERAL ACCOUNTING OFFICE

CW CHART: FRANK C. O'CONNELL

IBM claims largest capacity drive

BY RICHARD PASTORE
CW STAFF

ROCHESTER, Minn. — IBM announced earlier this month that it has developed a 3½-in. hard disk drive with a capacity of 320M bytes — believed to be the highest capacity of any drive of this size yet released. At the same time, IBM awarded marketing contracts for the drive to Western Digital Corp. and CMS Enhancements, Inc.

The product will initially find a home with technical and graphics workstation users, said James Porter, president of Disk/Trend, Inc. in Los Altos, Calif.

The drive, which has an average seek time of 12.5 msec and a data transfer rate of 4M byte/sec. via the small computer systems interface II port on IBM machines, is the vanguard of a coming battalion of high-capacity products from various vendors, Porter said.

"This will be the high end into 1991, but within a few years, we'll see higher capacities," he added. "Right now, there is advanced planning being done on 760M-byte drives."

Irvine, Calif.-based Western Digital and Tustin, Calif.-based CMS will market the drive under their own labels. CMS said the drive is available now at a price of $2,995, while Western anticipates rolling out its version by Sept. 1. Dan Brown, Western's vice-president of storage marketing, said he expects the firm to sell 30,000 to 50,000 units in the first year.

Disk/Trend estimates the market for 3½-in. drives of this capacity to reach $972 million in 1991 on sales of 382,000 units worldwide.

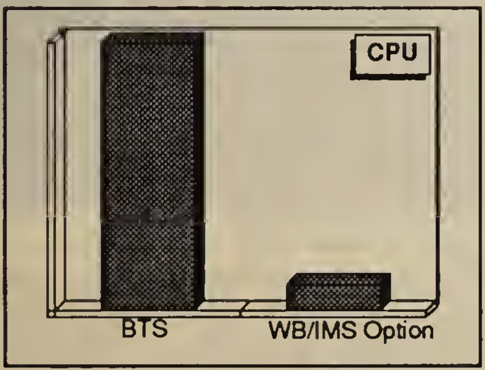
Though IBM said it is negotiating to sell the drive through other marketers, Porter said that IBM's main interest in developing the drive was for eventual use in its own products.

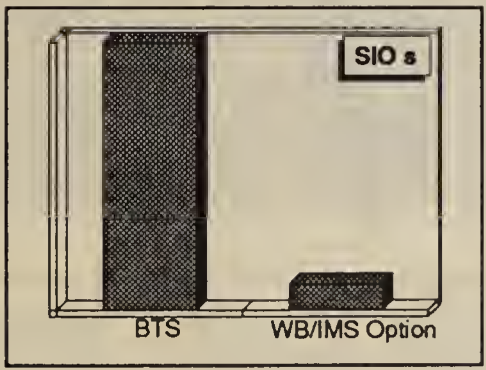
Specifically, Porter projected that the drive will turn up in IBM's RT workstations, a desktop version of its tower-configured Personal System/2 Model 80 and its low-end Application System/400, which may then have "a smaller box size — probably with a smaller number of terminals attached much like the System/36 was," he said.

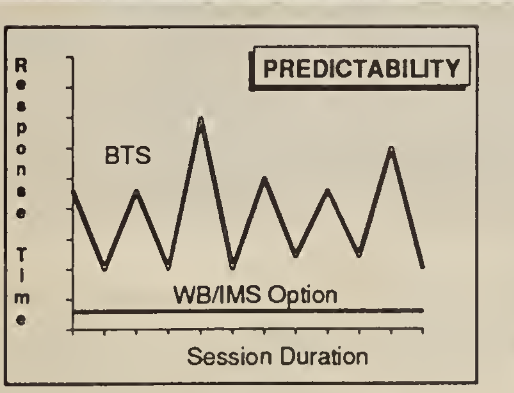
Inside

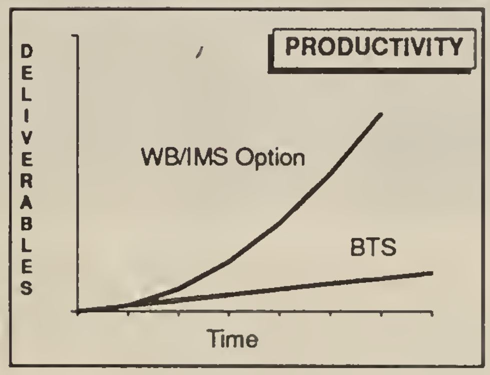
- The fresh and the funky at Macworld Expo. Page 41.
- Barney's breaks out with standardized point-of-sale system. Page 41.
- Newest Planperfect hoes down the 1-2-3 trail. Page 41.

Technology Breakthrough: IMS DB/DC on a PC !









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WYSE

Appetizers at Macworld

Attendees get an assorted taste of tools to come

BY RICHARD PASTORE
CW STAFF

BOSTON — An estimated 30,000 attendees at the Macworld Expo held earlier this month got to see and sample a smorgasbord of introductions. There were abundant samples of connectivity products, a dash of mainframe-descended business tools and multiplatform applications and even a mouse-under-glass.

- First there was the Uncola; now there is the Unmouse. Microtouch Systems, Inc. in Wilmington, Mass., has unleashed a mouse-size touch-sensitive glass tablet. To position the cursor, a user slides his finger over the glass; there is no need to drag the product across a mouse pad. It also includes a key pad under the glass for programming and executing common commands and macros. The Unmouse sells for $235 and is available now.
- Informix Software, Inc. for the first time publicly demonstrated its Wingz spreadsheet add-in that allows desktop users access to remote SQL databases. With the Wingz add-in, users can access SQL databases across a network and import the query results into the Wingz spreadsheet.

The add-in allows non-SQL-literate users to query existing database tables through point-and-click options. Advanced SQL users can exploit the product's capabilities to build applications that can remotely create, modify and query databases.

The Lenexa, Kan., firm said the product will ship after the fourth quarter.

- An OEM version of Novell, Inc.'s Netware debuted from Dayna Communications, Inc. in Salt Lake City. Daynanet offers print and file services to as many as 100 concurrent Apple Computer, Inc. Macintosh and IBM Personal Computer users over Localtalk and compatible systems. It is now available for $1,249.
- The Timbuktu/Remote Access Pack from Farallon Computing, Inc. allows users to access, operate and retrieve files from a remote Mac with only a modem call. The bundled system will sell for $1,295 when it starts shipping next month, the Berkeley, Calif.-based firm said.

Microtouch's Unmouse *tries to quench Mac users' thirst*

- Avatar Corp. introduced Macmainframe SE/DFT and Macmainframe SE/30/DFT, adding distributed function terminal capabilities to the company's Mac-to-IBM mainframe communications products. The products allow up to five simultaneous host sessions on Mac SE and SE/30 machines. They will be priced at $1,295 — or $495 as an upgrade — and will be available in the third quarter, according to the Hopkinton, Mass.-based firm.
- Longtime mainframe statistical data analysis package maker SPSS, Inc. has introduced a Macintosh version of its SPSS flagship. The package is slated to be released in the fourth quarter and will retail for $795.

A spokesman for the Chicago company said the announcement reflects an industry trend to bring mainframe-style business products down to the Mac platform, but the company is also bringing the user-friendly interface developed for its microcomputer versions back to its mainframe release, completing a circle of sorts.

- SBT Corp. in Sausalito, Calif., previewed a multiuser Database Accounting Library version known as Mac/Series Six Plus, which can run simultaneously on a mixed network of IBM and Mac computers. It is available now and costs $495.
- NEC Home Electronics, Inc. announced a portable compact disk/read-only memory reader for the Mac and IBM PC platforms. The 2.2-pound unit has an access time of 1.5 sec.

The Intersect CDR-35 reader features an optional battery pack that allows 90 minutes of continuous use. The reader preserves battery time by powering down when not accessing disks.

The PC adapter cable will ship Sept. 5 and sell for $199; the Mac adapter will be available in the fourth quarter and will cost $99, NEC said. The reader itself retails for $599.

- Adobe Systems, Inc. in Mountain View, Calif., unveiled the Adobe Type Manager, which brings the Adobe Postscript language outline fonts to the screen display and to Quickdraw printers such as the Apple Imagewriter. The product will be available at the end of October for $99, Adobe said.
- Symantec Corp. unveiled SUM II, an upgrade of its Symantec Utilities for the Macintosh (SUM) program. The new version adds file backup and data encryption features to aid security.

SUM II will be available this month for $150, the Cupertino, Calif., company said.

OS/2 suits Barney's for point-of-sale net

BY ROBERT MORAN
CW STAFF

In the midst of a major expansion of its specialty stores, Barney's New York will standardize its point-of-sale system.

The retailer plans to open approximately 30 specialty stores in the New York tristate area, each with an Atrium 9000 — an OS/2-based point-of-sale system that Fujitsu Systems of America in San Diego introduced this month.

According to David Sam, director of sales and point-of-sale control at Barney's New York, each specialty store will use the Atrium 9000 for standard register functions, layaway tracking and, eventually, electronic mail and scanning.

"Barney's has very unusual and complicated transactions," Sam said. "We do special ordering and have programmed tax tables for multistate environments and track these to ensure that they are in keeping with state regulations."

Flexibility a plus

Sam said that the system is flexible and offers many possibilities, such as scanning, for the future.

In addition, the company's Data General Corp. DG/MV 15000 "will poll the registers each night and periodically download information over standard telephone lines." Communications between the Atrium 9000 and the host are achieved with a 2780/3780 bisynchronous connection.

According to David Shoemaker, North American sales manager for STS Systems, Inc., a value-added reseller that installed the Barney's system, entering markdowns, price changes and inventory counts are performed in the same way as any other transaction at the register and will not tax the controller.

However, when downloading information from a host, the registers are not usable because the system is in polling or communications mode, he said.

STS Systems also offers its own E-mail system for the Atrium 9000.

Each system at Barney's, which served as one of two beta-test sites for the product, consists of one controller, two terminals and two satellites.

The controller contains an Intel Corp. 80286 motherboard, which is built into the register and functions as a terminal. Terminals attached to the controller also contain intelligence that offers redundancy if the master system goes down. "A terminal can maintain a data capture and transactions for itself and any of the satellites, which are dumb terminals," Shoemaker said.

Piecemeal

According to Fujitsu, the Atrium 9000 can be built from a selection of five controllers and terminals that are compatible with the IBM Personal Computer. A basic system costs approximately $14,000, the company said.

A full system can perform transaction processing for approximately 64 point-of-sale terminals in addition to typical retail functions, which can be selected from menus to meet individual retailers' needs, the company said.

According to Fujitsu, use of the OS/2 operating system will position the company to take advantage of future technologies. Shoemaker said the multitasking operating system enables the Atrium 9000 to run more applications on the controller than ones on just the transaction set.

Planperfect braids in 1-2-3 strands

BY RICHARD PASTORE
CW STAFF

OREM, Utah — Wordperfect Corp.'s Planperfect spreadsheet package, in addition to its keystroke-for-keystroke compatibility with the company's word processor, now incorporates features that mimic Lotus Development Corp.'s 1-2-3 menu interface and ease the importing of 1-2-3 files.

To make Planperfect 5.0, which began shipping earlier this month, easier for current 1-2-3 users to work with, the company has added a 1-2-3-style bottom-screen menu bar. Other interfaces new to this version are Wordperfect-style function keys and pull-down menus, slash commands and a user-programmable keyboard.

The release also introduces a macro conversion option that allows users to choose whether they want to convert 1-2-3 macros when importing 1-2-3 worksheet files. If users want to manipulate an imported 1-2-3 worksheet within Planperfect, the program can convert 95% of its macros, according to Kenneth King, Wordperfect manager of personal computer product marketing.

Alternately, users can opt not to convert the 1-2-3 macros when importing files, which allows them to print a copy of the unadulterated worksheet if they wish.

"People may buy Planperfect just to print the spreadsheets they do on Lotus," King said. The company bases this supposition on Planperfect's printing capabilities. The package supports more than 450 printer drivers and can access Wordperfect's 1,700 characters in 14 different character sets. Users can print up to 32 different fonts per worksheet, change fonts an unlimited number of times within the worksheet and preview the printed version on the screen.

King added that he expects the on-line, context-sensitive help system to give Planperfect an edge in the easy-to-use contest. A user looking for help in the printing stage, for instance, can call up a box containing printing instructions without having to scroll through a lot of unrelated information.

All you can sheet

The program also allows for unlimited spreadsheet linking, something 1-2-3 Release 2.2 does not provide for, King noted. Planperfect does not have a comprehensive Undo feature, however; it can only restore the previous deleted command.

Planperfect 5.0 is fully compatible with Wordperfect 5.0. "Sixty-five percent of the keystrokes are exactly the same or similar," which may make the product most tempting for the nearly 2.25 million current Wordperfect customers who also use spreadsheet software, King said.

Planperfect requires 384K bytes of random-access memory and two floppy disk drives (512K bytes and a hard disk are recommended). It runs on IBM Personal Computers, PC XTs, ATs, Personal System/2s and compatibles and retails for $495. It is available as an upgrade for $75 and is free through Oct. 1 to those who purchased Version 3.0 after April 1, according to the company.

Alexander

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weighs a ton after a few minutes. I can't believe that there are going to be that many people willing to tote this arm- and wallet-buster through an airport. It probably goes without saying that this new baby won't fit on the tray attached to the back of an airplane seat. Never mind that people seldom use them that way: It's the thought that counts.

Moreover, I would never buy a portable whose screen is not backlit. An active matrix display is OK on the eyes, but without backlighting, LCD screens are only legible at high noon or in the glare of one of those lights that are used to spot planes during night bombing runs.

In sum, Apple's soon-to-be introduced box sounds about as appealing as learning that your 15-year-old daughter has had her boyfriend's initials tattooed on her backside.

I'm disappointed. I need a Mac portable to go with the Mac on my desktop at home. The Mac Portable, however, I can live without.

Now, however, I have my eye on a Boulder, Colo., company called Wallaby Systems.

Within weeks after Apple unveils its portable, Wallaby Systems claims it will start shipping a $2,995, nine-pound Mac-compatible portable. Although it isn't easy to make an apple-to-apple comparison between the two portables, the Wallaby machine seems to be a winner. Wallaby's portable includes a back-lit, double super-twist screen, one megabyte of RAM and a floppy disk drive that reads disks from Macintosh and MS-DOS machines. Among its other features is an infrared keyboard and what the company calls an "isopoint" cursor controller and a "silicon disk" or RAM drive that can be expanded to 16 megabytes.

The portable is 3½ in. thick and 12 in. long, according to Mike Higgins, the company's marketing manager. "You should only have to carry as much as you will need when traveling," he says. "With a 40-meg hard disk drive, Apple's portable is a whole desktop."

> ANYONE WHO HAS to travel regularly knows that with the usual two-suit carry-on bag in one hand and a briefcase in the other, anything more than 10 pounds weighs a ton after a few minutes.

There's a catch, though: Users who want the portable, dubbed the Wallaby Laptop System, must be willing to transfer the Apple read-only memory (ROM) chips in their Mac Plus or SE to the portable.

The laptop is being positioned as "an add-on to the Mac Plus and SE" for that and other reasons, Higgins says. The machine can be operated as a battery-powered laptop or plugged into a Mac Plus or SE. When a Mac and Wallaby are connected on a desktop, the two systems use a Motorola 68000 processor installed in the laptop.

The 68000 runs at 15 MHz, two times as fast as the processor in either the Mac Plus or SE, Wallaby says. Also, the setup can make use of disk drives, screens and memory in both machines.

Higgins says that the company is not worried that using Apple ROMs in its laptop will expose it to patent or copyright infringement litigation from Apple. He says users have been free to transfer ROMs on add-in boards and other devices from one computer to another and that this instance is no different. Apple may have something to say about the matter after the Wallaby is introduced, however.

It's an intriguing product. Maybe even one worth waiting for . . .

Alexander is a ***Computerworld*** senior editor, PCs and workstations.

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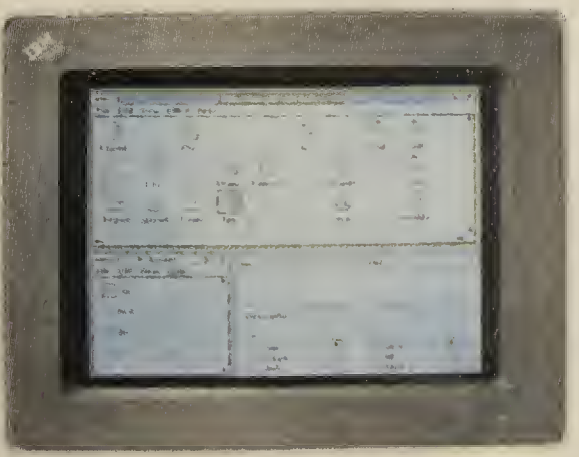

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What's more, OfficeVision will protect your previous investments. It not only accommodates your DOS and nonprogrammable terminals, it extends their power, and it will work with existing office applications like IBM PROFS.™

And your programmers will be able to create compatible applications for OfficeVision, thanks to SAA's open architecture.

To be delivered over the next 12 months, OfficeVision will unite your systems as never before, including your most valuable "data processors," your people.

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OS/2 Extended Edition is the high-test fuel of personal computing, but it's also a cornerstone of SAA.

Which means that IBM OfficeVision can really put OS/2 EE to work, building on advances like multitasking and, even more exciting, cooperative processing.

With cooperative processing, an OfficeVision user can have several computers sharing one task. A midrange computer might search files in a mainframe for constructing a graph that's displayed on a PC.

Each system does its part, but as a user you're completely unaware. You simply ask for the work to be done. How it gets done isn't your worry.

A single standard. Multiple solutions.

We can call SAA a standard, but that doesn't mean much unless software developers agree with us. And indeed they do.

Major software firms are embracing SAA, creating applications of their own for everyone from secretaries to CEOs, for needs ranging from manufacturing to human resources to finance to telecommunications.

The question is, when should *you* embrace SAA? With applications like IBM OfficeVision, companies who adopt SAA will enjoy a clear advantage over those who don't. So the time to start planning is now.

To learn more about SAA, OfficeVision and your future, call your IBM Marketing Representative today.

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IRS

CONTINUED FROM PAGE 39

ed database management system that includes laptop micros, desktop computers and minicomputers.

Overall, the AES project is six years behind schedule and will cost $800 million more than originally estimated, the study concluded. "The development of AES presents a bleak picture," the GAO audit said. "To date, despite spending about $187 million, only the laptop computer phase of AES is operational, and tangible benefits for that phase have not been demonstrated."

The IRS had estimated the AES project would produce $16.2 billion in benefits over its nine-year life, but the GAO showed little confidence in that figure. The key assumption used in making the estimate was that AES would enable auditors to examine more returns, thereby increasing tax revenue. "However, the IRS has been unable to verify that the use of laptops has actually resulted in the examination of additional tax returns or increased tax revenues," the GAO said.

As a result, the IRS has now abandoned its original justification and is devising a new system for determining benefits on the basis of potential labor reductions.

Faced with the development problems, elusive benefits and tight budgets, the White House Office of Management and Budget has scaled back 1990's funding of the program by 82%, from $110 million to $20 million.

NEW PRODUCTS

Software applications packages

Xerox Corp. has enhanced its Expert Series engineering graphics software packages for the company's 6085 and 8010 computer workstations.

Expert Version 4.0 was designed to aid engineering and technical professionals by enabling them to integrate mechanical and schematic drawings into text and graphics documents, such as manuals, specifications, proposals and reports, the company said. The latest version supports integration with Xerox Viewpoint desktop software and reportedly provides schematics packages for creating two-dimensional diagrams.

The Expert 4.0 Drafting package costs $2,000, and the Expert 4.0 Schematics program is available for $2,900.

Xerox
Xerox Centre
101 Continental Blvd.
El Segundo, Calif. 90245
800-832-6979

Dynatech Computer Systems, formerly Cromenco, Inc., has created a system that allows updates to existing computer-aided design (CAD) documents and drawings.

Called D-Image, the PC application reportedly allows vector, raster or ASCII editing of the desired portion of a scanned raster image. According to the vendor, the 286 or 386 system, running DOS, allows vector-type CAD processing to be merged with raster images and ASCII characters on a single-color screen.

Consisting of software, a 20-MHz Intel 80386 machine with an 85M-byte hard disk, 2M bytes of random-access memory and a 13-in. IBM Enhanced Graphics Array color multisync monitor, the basic system costs $29,250, and the unbundled software is $19,750. Dynatech will scan 15 documents free of charge for systems shipped before Aug. 31, 1989.

Dynatech Computer Systems
P.O. Box 7400
280 Bernardo Ave.
Mountain View, Calif. 94039-7400
415-964-7207

Management Information Corp. (MIC) has announced a product line of computer and communications information services that set up a personal database on the user's personal computer.

The Personal Online Information Services product line reportedly includes MIC/Info, weekly tracking of computer and communications industry news; MIC/Tech, monthly feature and cost comparisons of computer and communications specifications; MIC/Sub, monthly product evaluations; and MIC/Index, a master index of all MIC hard-copy subscription publications.

The services are available for both single stations and Novell, Inc. local-area networks. Prices vary based on the service and version; MIC/Tech is priced at $660 per year for the single station and $1,980 for the network version.

MIC
401 East Route 70
P.O. Box 5062
Cherry Hill, N.J. 08034-5062
609-428-1020

Data storage

Systems Integration Associates has announced high-speed disk-caching controller options for its 33- and 25-MHz computers.

The add-in caching boards reportedly make disk operations up to 15 times faster and support enhanced small device interface hard drives and two floppy drives. The controller is aimed at network servers, large databases and other disk-intensive operations.

The basic caching controller is priced at $1,410 and includes 512K bytes of memory. Priced at $1,990, an additional 4M bytes of controller memory is available. A mirror disk option is $995.

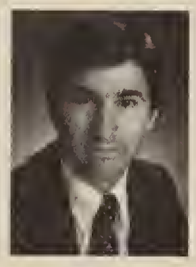
Systems Integration Associates
222 East Pearson
Chicago, Ill. 60611
312-440-1275

An extra-high-density 3¼-in. floppy disk drive for any IBM Personal Computer, PC XT or AT computer system has been introduced by Practical Computer Technologies, Inc.

The Practidisk EXD series is said to offer 4M bytes of data storage capacity with a transfer rate of 1M byte/sec. and will automatically accommodate standard 2M-byte and 1M-byte disks, the vendor said.

"Everyone concerned about Computer Connectivity should go to the Invitational Computer Conferences."

Edward Cooper
Senior Director of Marketing
NetWare Products Group
NOVELL, INC.



Because in every major market of the world, the Computer Connectivity Series of the ICCs gives the PC networking professionals what they need to know about LANs, networking, modems, software, personal computers and associated products.

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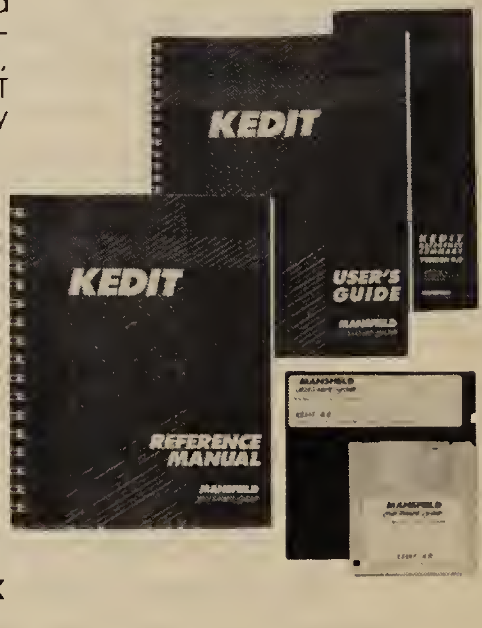

"While KEDIT remains true to its heritage in retaining compatibility with the mainframe XEDIT, it is also one of the most feature-packed PC text editors around."
PC Magazine, 10/31/88

KEDIT Version 4.0 is available at $150; OS/2 version is $175. Add $3 shipping. MC, VISA, American Express. Demo version available.

KEDIT is a trademark of the Mansfield Software Group, Inc

The system includes drive, controller, utility software and interconnect cable, according to the company. Internal versions and quantity discounts are offered.

The removable drive subsystem has an introductory price of $399, the company said. The floppy drive is reportedly scheduled to be available by the third quarter.

Practical Computer Technologies
3972 Walnut St.
Fairfax, Va. 22030
703-385-3332

Hard disk drives with 21M to 95M bytes of storage for the Apple Computer, Inc. Macintosh have been introduced by Heart Data Corp.

Marketed under the name Datacase, the drives reportedly include internal and external models, are rated between 27 and 40 msec and have Unix formatting compatibility and one-button small computer systems interface setup. This series complements the higher capacity, faster access Heart Data line.

Prices for external drives range from $780 for the 21M-byte DCX20 to $1,330 for the 85M-byte DCX85 model. Internal drive prices range from $620 for the 21M-byte DCI20 to $1,495 for the DCI95 model.

Heart Data
9009 Independence Ave.
Canoga Park, Calif. 91304
818-998-1691

Advanced Logic Research, Inc. has announced an IBM Micro Channel Architecture-compatible computer based on Intel Corp.'s i486 microprocessor.

The Powercache 4 system reportedly uses a 128K-byte read-and-write-back cache design. The computer comes standard with 2M bytes of random-access memory, expandable to 32M bytes, and it also includes both a 1.44M-byte IBM Personal System/2-compatible floppy disk drive and a 15-MHz 130M-byte hard-disk subsystem with a 32K-byte hardware cache. According to the company, users can expand the system's hard-disk storage for use as a file server.

Pricing starts at $9,990 with shipments slated for September. Graphics packages are optional.

Advanced Logic Research
9401 Jeronimo Road
Irvine, Calif. 92718
714-581-6770

Systems Peripherals Consultants, Inc. has introduced a line of portable hard disk drives that offer 29 msec average access time to reach 20M to 80M bytes of data in a removable module.

According to the company, adapter cards for the Export series of drives are available for Toshiba Corp. and Tandy Corp. machines, in addition to IBM Convertible, Zenith Electronics Corp. Z-171 and IBM XT/AT compatibles.

All drives fit into the identical docking mechanism can be used concurrently with internal drives in the user's laptop or desktop. The 80M-byte version has an average access time of 15 msec and sells for $1,695.

Systems Peripherals
Consultants
7950 Silverton Ave.
San Diego, Calif. 92126
619-693-8611

Peripherals

Mitsubishi International, Inc. has introduced a color-image scanner with a fixed flatbed scan system. Designated the SC-7500, the unit reportedly works with most popular hardware platforms, including Apple Computer, Inc. Macintoshes.

The device offers a 400 dot/in. resolution and includes stop and restart functions. It sells for $8,950.

Mitsubishi International
Computer Graphics Dept.
701 Westchester Ave.
White Plains, N.Y. 10604
914-997-4999

Pacific Data Products has announced the release of an Adobe Systems, Inc. Postscript language-compatible plug-in cartridge for Hewlett-Packard Co. Laserjet Series II printers. According to the company, Pacificpage gives the user access to 35 Apple Computer, Inc. Laserwriter font families in unlimited point sizes.

In addition, it also provides Adobe Postscript Version 47 capabilities, including reversed text, scaled fonts and high-resolution graphics such as arcs and halftone images.

The cartridge can be used with IBM Personal Computers or compatibles and Apple Computer Macintoshes. It supports any application that allows output to an Adobe Postscript printer.

Available to users in September, Pacicfipage is priced at $695.

Pacific Data Products
6404 Nancy Ridge Drive
San Diego, Calif. 92121
619-552-0880

C. Itoh Electronics, Inc. announced that it has released a 24-pin, multispeed document and label printer for high-resolution uses.

According to the company, the Prowriter C610 is targeted towards applications that require high-resolution, high-density printing on a wide variety of single- and multipart forms, labels and paper stock.

The high-resolution printer has a reported print speed of 240 char./sec. at 12 char./in. and 66 char./sec. at 10 char./in. for letter-quality output. The printer is priced at $799.

C. Itoh Electronics
2505 McCabe Way
Irvine, Calif. 92714
800-347-2484

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Mary VGoracy

Mary V. Goracy
Vice President
Corporate Distribution and Support Services
Charles Schwab & Co., Inc.

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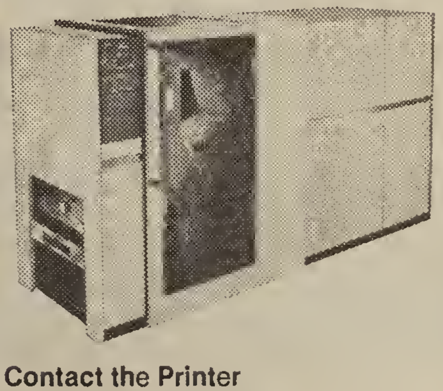
Contact the Printer Professionals at:

Siemens Information Systems, Inc.
Peripheral Systems Division
240 East Palais Road
Anaheim, CA 92805
(714) 991-9700

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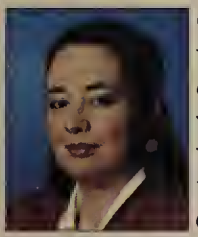
NETWORKING

DATA STREAM

Patricia Keefe

The littered LANs



Oh the wacky, wacky land of local-area networks. It is filled with tongue-twisting standards, a rat's nest of cabling choices, standalone applications kludged into network compliance, religious wars over network topologies — not to be confused with shootouts over operating system software — more server options than you can shake a diskless node at and many sleepless nights spent worrying about whether the window is open or closed.

Despite all this, or perhaps because of it, vendors and market researchers are still trying to answer the eternal question: What do users want? This really translates into "What can I sell 'em," but hey, this is America.

Anyhow, what with a softening economy and a predicted slowdown in the annual rate of growth in LAN sales, now is a good time to take a look at what users will spend dollars on, not to mention what they'd pay good money for, if only they could find it.

The consensus represented by the stack of research reports piled under my desk paints the following picture of 1990 LAN purchasing strategies:

Continued on page 54

Videoconferencing eyes masses

ANALYSIS

BY ELISABETH HORWITT
CW STAFF

After languishing for years in a few large firms' boardrooms, videoconferencing is finally reaching users at large, via lower cost systems with more modest bandwidth requirements.

This is evident among industries that pioneered the use of such technology. Aerospace companies, for example, increasingly use videoconferencing to hold meetings about anything from working together on a design to making management decisions, according to Don Augustine, division leader of technical computing at McDonnell Douglas Aerospace Information Systems Co. With videoconferencing, Augustine said, "you can usually get all the right people at both ends, where if you have travel involved, it might be difficult and too costly."

Aerospace companies are using the technology to do business not only internally but also with their suppliers, customers and subcontractors, he added.

Once a luxury

Videoconferencing first came out several years ago as a luxury few firms could afford, with equipment and conferencing facilities costing $1 million, according to Michael Kennedy, a senior consultant at Cambridge, Mass.-based consulting firm Arthur D. Little, Inc. Those costs are coming down, however. Last year, Picturetel, Inc. in Peabody, Mass., introduced the C-3000 video coder/decoder, priced at $25,000 to $35,000, compared with $75,000 for the company's older systems.

The cost of transmitting full-motion video has also taken a dive recently, for two reasons. First, equipment vendors such as Picturetel have introduced equipment that provides high-quality resolution over less and less bandwidth: from 6M bit/sec. over a decade ago to 112K bit/sec. systems last year.

Second, AT&T competitors U.S. Sprint Communications Co. and MCI Communications Corp. have come out with low-cost switched 56K bit/sec. digital services, forcing AT&T to cut its own rates, Kennedy said. Typical carrier prices have dropped from $75 an hour transcontinental last year to around $15 per hour this year, sources said. U.S. Sprint reportedly just got Federal Communications Commission approval for a $7 per hour switched 56K bit/sec. tariff.

The 112K bit/sec. systems have approximately the same resolution as an ordinary television, so they cannot be used to present "working papers" that include printed matter and graphics, Augustine said.

However, they are quite adequate for "presentation graphics," such as transparencies, and are easier and less expensive to deploy than higher resolution, higher bandwidth systems, Augustine said.

Another development that should boost videoconferencing use is multivendor interoperability. The Consultative Committee for International Telephony and Telegraphy is preparing to finalize a videoconferencing standard that promises interoperability between different vendors' systems. Called PX64, the standard supports speeds between 64K and 2M bit/sec. in 64K increments and should be formally adopted next July, according to Robert Mitro, vice-president of sales and marketing at Picturetel.

Both Picturetel and archrival Compression Labs, Inc. said that they plan to introduce upgrades that will enable their existing products to conform to the standard.

Picturetel plans to introduce an upgrade to support a low-resolution (256-pixel by 240-line) version of the standard within 30 days of its finalization. However, both vendors said it will take approximately six months to upgrade their systems to support the full-resolution (352-pixel by 288-line) standard, spokesmen said. Upgrades will cost approximately $9,000.

Standardized multivendor interoperability would promote user acceptance of videoconferencing just as it did for facsimile machines, Kennedy said. But he added that vendors still must overcome one more obstacle to a market explosion: resistance entrenched in the user culture.

"First-time participants are not as comfortable" with videoconferencing, Augustine agreed. But, he added, "We have had our systems for quite a while, and a lot of people have used them, and it seems natural to go into the room and have ordinary conversation with people" who could be hundreds of miles away.

Inside

- Can you play OSI? Service industries need someone to hum a few bars. Page 53.
- NSFnet ready for the 45M bit/sec. leap. Page 55.
- Fujitsu introduces modular storage for PC nets. Page 58.

Users wage price caps war on their own TURF

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — User groups were not thrilled with the Federal Communications Commission's price caps regulation for AT&T. But they are really incensed over the FCC's plan to extend price caps to the local telephone companies.

Representatives of the newly formed coalition Telecommunications Users for Regulatory Fairness (TURF) said it was "ludicrous" for the FCC to give so much price flexibility to local exchange carriers, which are regulated monopolies.

The FCC proposal would allow local carriers to raise rates for monopoly services by 5% a year with only cursory review by the agency, the user coalition said.

"The fatal flaw in the FCC's plan is its total disregard for the simple fact that the local exchange carriers are monopo-

Continued on page 54

IBM backs Phaser's Netware links

BY PATRICIA KEEFE
CW STAFF

SAN FRANCISCO — Phaser Systems, Inc.'s efforts to improve the integration of Novell, Inc.'s network software into IBM's mainframe environment have received an endorsement of sorts from IBM, which has agreed to reference-sell Phaser-developed software.

"IBM recognizes the potential of having Netware reach higher into corporate accounts," said Phaser Vice-President of Marketing Raymond T. Granvold.

In turn, Phaser has been appointed an IBM-authorized application specialist for its recently announced Netware for VM and Netware for MVS mainframe connectivity products.

The new software will reportedly enable multiple Novell Netware servers to talk to one another under an IBM Systems Network Architecture (SNA) backbone. Available in September, Phaser's programs will allow Netware users to access and store data on an IBM host, while also providing remote local-area network administration features, security, backup recovery and electronic software distribution [CW, Aug. 7].

Both products will be listed in IBM's National Solutions Center Database. IBM will also reference-sell them to customers. In addition, IBM said it will instigate joint sales and marketing activities with Phaser at its discretion. IBM already sells several versions of Novell's Netware software.

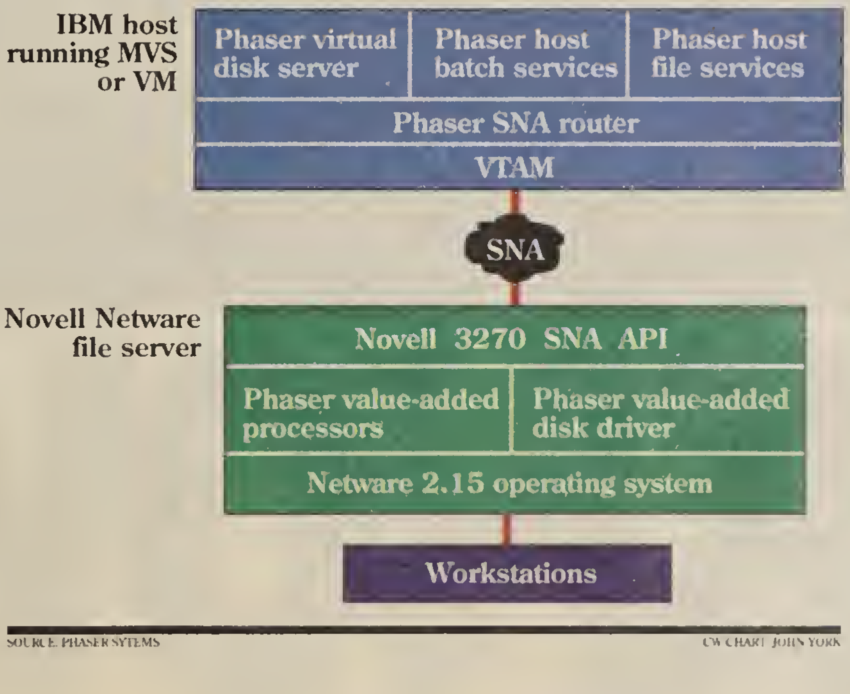
Phaser also executed a separate agreement with Novell, enabling it to sell an OEM version of Netware. The deal gives Phaser the right to sell a modified version of Novell Netware for IBM mainframe operating system environments, including MVS and VM. Novell Chairman Raymond Noorda owns Phaser.

In a recent interview, Granvold outlined an ambitious growth path for his Netware for MVS/VM products, including

Continued on page 53

Closing the loop

Phaser Systems promises tighter integration among IBM hosts and Novell networks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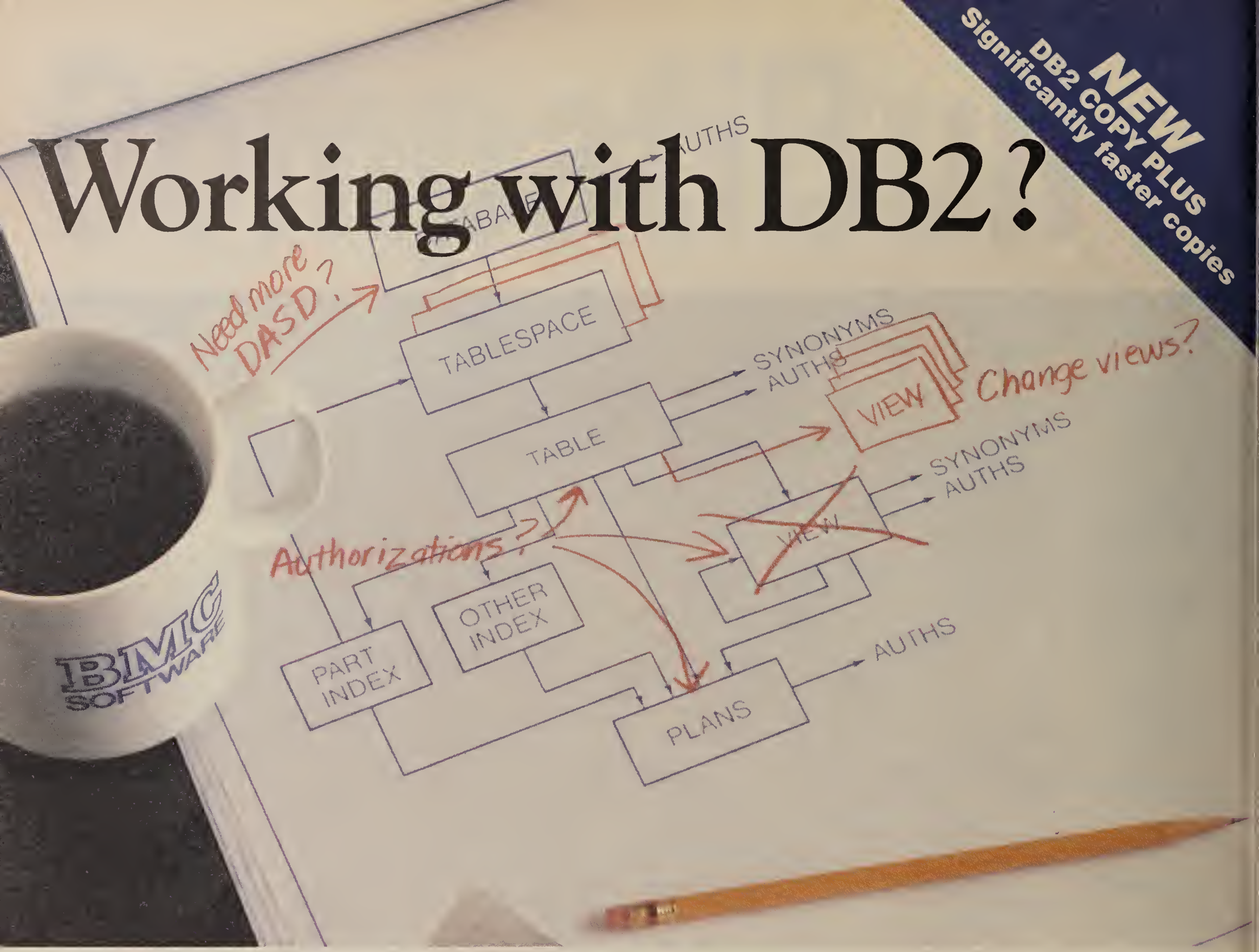

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CW

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Service industries look to connect with OSI

BY MARYFRAN JOHNSON
CW STAFF

NATICK, Mass. — Banks, insurance companies and other service industries are poised to jump on the OSI bandwagon as soon as it strikes up a tune they can recognize, a market research survey found recently.

Products supplying the Open Systems Interconnect (OSI) networking protocol are fast becoming a requirement of doing business in a multivendor environment, said Venture Development Corp.'s Maurice Klapfish. However, there is no "OSI magic" in the air, he hastened to add.

"The product has no entree just because it's got OSI," Klapfish said. "Users are not asking for OSI but for solutions to business problems" with integration of multivendor computer environments.

> "THESE PEOPLE are telling us, 'The time has come. We're ready. We're receptive. Show us your stuff, vendors.' They expect to lay out dollars by 1993 or so."
>
> MAURICE KLAPFISH
> VENTURE DEVELOPMENT

VDC, a market research and consulting firm, conducted a telephone survey among 50 to 100 likely users of OSI products. The findings confirmed the notion that service industries are receptive to OSI and are avidly watching its progress, Klapfish said.

"These people are telling us, 'The time has come. We're ready. We're receptive. Show us your stuff, vendors,'" he added. "They expect to lay out dollars by 1993 or so."

In 1988, there were $49 million worth of OSI products shipped worldwide, VDC research shows. The firm is forecasting tremendous market growth of $700 million to $2 billion by the mid-1990s.

"The market has been positioned, but there's not a lot available now," Klapfish said. "If the products are not available, vendors will miss an opportunity."

The survey found increasing interest in user-friendly interfaces "to hide the complexity of the OSI protocol," Klapfish said.

The three major areas for OSI products are in manufacturing, technical/office and government markets. The bulk of OSI products currently available in the U.S. are in the manufacturing area, but Klapfish said this will change by the mid-1990s as the interest of nonmanufacturing industries peaks. The availability of standard OSI products from major vendors will fuel this growth, the survey suggested.

High expectations

In the long term, businesses expect the OSI protocols to be embedded in the vendors' products and hardware, making OSI "an inexpensive commodity," Klapfish said.

The banking and financial industries indicated that they would judge OSI products against their expectations for other technologies.

"That means ease of networking when the products are available and how they are integrated with software," Klapfish explained.

The survey respondents in the insurance industry voiced a greater commitment to IBM's proprietary Systems Network Architecture.

"But they are interested in OSI," Klapfish said. "They were just more likely to use it to communicate to the outside world rather than integrate it in their own multivendor environment."

In the transportation industries, the survey detected a cautious approach to OSI products. "Their plan is to introduce advanced technology where it makes sense, to improve performance and connectivity," Klapfish said.

Phaser

CONTINUED FROM PAGE 49

LU6.2 support and an IBM Systems Application Architecture (SAA)/Common Programming Interface for Communications-compatible interface to provide ties to Netware.

However, strategy regarding IBM's SAA Officevision implementation is a little less clear. Technical analysts have speculated that Officevision/LAN could pose a serious threat to Novell in IBM accounts, which make up an estimated 60% of Netware's user base.

"There's no real direct link in the immediate time frame to tying Netware into Officevision," Granvold said. In the meantime, he suggested the SNA backbone could be used to provide Officevision-like functionality to Netware users, by broadcasting mail messages and data across the backbone.

Meanwhile, Phaser's efforts to study Officevision have hit a slight snag, said company President John Mullen: "We've had trouble getting development products from IBM and Metaphor."

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8 x 16 matrix on one 2-foot floor tile	YES	NO	NO
Easy online expansion and maintenance	YES	NO	NO
PC-based control system	YES (standard)	YES (optional)	NO

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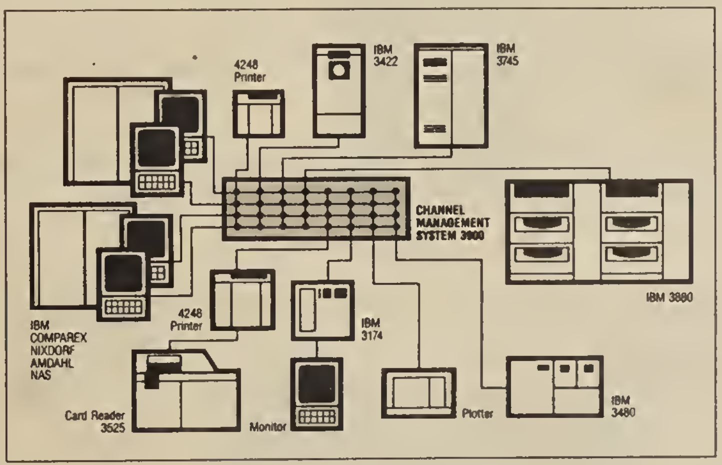

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TURF

CONTINUED FROM PAGE 49

lies," according to TURF's official statement. "Because the plan would all but deregulate these carriers' rates, it would cost consumers at least $4.1 billion" more than ratepayers would pay under the current regulatory regime during the next four years, TURF's statement said.

The FCC has already implemented price caps for AT&T and has issued a proposal for extending the new form of incentive-based regulation to the local carriers next year [CW, March 20]. The FCC said that price caps regulation will earn local carriers higher profits if they make significant gains in productivity and efficiency while capping rates to protect consumers.

The TURF coalition was formed earlier this month to fight the proposal. It includes the International Communications Association (ICA), the Ad Hoc Telecommunications Users Committee, the Telecommunications Association and groups representing residential consumers.

Brian R. Moir, counsel to the ICA, said the group will begin by lobbying the new FCC chairman, Alfred C. Sikes, to halt the extension of price caps to the local carriers. Failing that, TURF will seek assistance from the U.S. Congress, he added.

TURF released a set of user-oriented principles to guide policymakers in their deliberations (see story this page), including the notion that local carriers should pass on to consumers the lower costs brought on by technological advances and productivity improvements.

Moir said the FCC is basing its price caps formula on a "meager" productivity factor of 2.5% annual growth, but the coalition has calculated that the productivity factor should be more like 6% or 7%.

In addition, the FCC should ensure that any new regulatory scheme prevents deterioration of service quality, according to Ken Adler, manager of telecommunications and computer policy for the Boeing Co. and spokesman for the Ad Hoc Telecommunications Users Committee.

The FCC's proposal requires the local carriers to submit service-quality monitoring reports that, according to the coalition, would be ineffective in identifying and correcting problems.

Fair's fair

TURF issued some principles for any new form of FCC regulation for the local exchange carriers.

- Recognize that the locals are monopolies and will remain so for the foreseeable future.
- Before incentive-based regulation begins, existing telephone rates must be reduced and restructured.
- The increasing productivity of the local carriers must be fully reflected in lower telephone rates.
- Users' legitimate expectations of rate stability should be satisfied.
- The local carriers' ability to cross-subsidize and manipulate customer service choices should be constrained.
- Open Network Architecture services should be given special treatment in order to hasten universal access to information services.
- Strong safeguards are needed to prevent deterioration of service quality.

Keefe

CONTINUED FROM PAGE 49

- Novell Netware stands out as the network operating system against which all other LAN software is measured, according to a recent Oppenheimer & Co. study. It is obvious that the specter of LAN Manager functionality to come is not enticing users to delay purchasing decisions. LAN Manager has made little headway, and some of us are wondering whether Microsoft can really afford to wait until mid-1990 to gain market share.
- Network management is a key, particularly given the rising interest in remote LAN and WAN connections. The problem here is that LAN management is an oxymoron. There isn't much out there beyond analyzers and administrative packages, says analyst Mary Modahl at Forrester Research.

Users seem pretty serious about interconnecting multiple LANs, which are tied in turn to the enterprise backbone. Vendors need to get equally serious about producing packages capable of managing multiple networks with some level of ease, not to mention automation.

- Popular networked applications include graphics (computer-aided design and manufacturing and business); electronic mail, particularly for wide-area messaging; and desktop publishing.

Unfortunately, it doesn't go without saying that developers of these packages should keep the code tight, the protocols open and design with networking in mind.

- In the future, happy offices will support a mix of flexible unshielded twisted-pair and fiber optics, no matter the network riding above. It's become uncool, not to mention unprofitable, to look down at Ma Bell's lifeblood — lowly telephone cable. Got that, IBM?
- Connections to remote bridges, Apple Computer's Macintosh, mainframe files and multiple platforms are hot. But not as hot or as absent as good LAN support services.

Keefe is a *Computerworld* senior editor, PCs and workstations.

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Educators in Evolving Technologies

National network prepares for a new speed limit posting

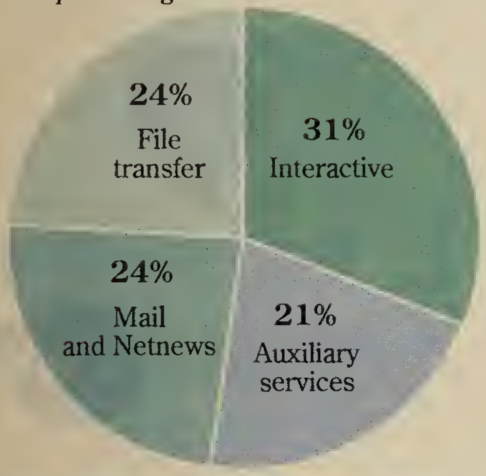
BY ELISABETH HORWITT
CW STAFF

WASHINGTON D.C. — After approximately a year of operation, the National Science Foundation's (NSF) academic and research network, NSFnet, has successfully migrated its users to full T1 speeds and is making ready for the next big jump to 45M bit/sec. rates. In the process, certain elements of the original system are likely to be discarded or at least significantly revamped, according to Steve Wolff, director of networking for the foundation.

Built by Ann Arbor, Mich., network consortium Merit, Inc., NSFnet blends MCI Communications Corp. leased lines, Network Equipment Technologies, Inc.'s T1 switches and IBM's customized packet switches.

Positioned for a shift

Already representing almost one-third of NSFnet's capacity, interactive applications are expected to grow



SOURCE: NATIONAL SCIENCE FOUNDATION CW CHART: DOREEN DAHLE

But increasing traffic is not the main reason why NSFnet is a likely candidate for a future overhaul. The foundation is currently very pleased with IBM's packet-switching system, which is "a great, fully distributed solution" entirely based on off-the-shelf products, Wolff said.

Each switch is actually a Token-Ring network of IBM RTs that share routing and packet transport tasks. More RTs can be added to support greater traffic loads. According to Wolff, the switches' only major drawbacks are that "they're big, take up a lot of power, are expensive and need a refrigerated room."

The switches currently support Transmission Control Protocol/Internet Protocol (TCP/IP), although NSFnet will also be able to route Open Systems Interconnect (OSI) packets by year's end, in compliance with the government OSI procurement policy, Wolff said.

The backbone handled 969 million packet/sec. in May, and usage has been increasing roughly 20% per month, Wolff said. The network should not show signs of degradation for about five months, when traffic will have doubled, he added. The network will continue to expand, with five to 10 institutions likely to be added by year's end, Wolff said.

The big changes in NSFnet's future have less to do with sheer numbers of users than with the types of applications supported — and the high-speed connectivity they require.

The network connects the systems of various academic — and, ultimately, government and military — research groups to one another and to supercomputer centers around the country. Such collaboration was seriously stymied by the 56K bit/sec. bandwidth of the original network, so the first goal of NSFnet was to migrate to 1.5M bit/sec. T1 connections.

Now the first phase is completed, and each application takes up a full T1 link. As a result, NSF plans to phase out the NET T1 switches, which are used to subdivide the T1 bandwidth among different users and applications, Wolff said.

But even T1 links are not sufficient to support real-time collaboration between different user workstations and supercomputers. The next phase of NSFnet, planned for next summer, will involve migrating to 45M bit/sec. links.

The stage after that, Wolff said, will be to extend the network's range to 1,000 research institutions and its transmission rates to 1G bit/sec. "We don't know how to do this yet," he added.

One potential source of help will be the National High-Performance Computer Technology Act of 1989, a bill now before Congress that would provide $1.75 billion in federal funding for research into supercomputing and information superhighways [CW, Aug. 14]. This fund includes $400 million that is earmarked for the National Research and Education Network, a multi-gigabit-per-second network to link researchers and computing resources around the country.

NSFnet would be "one major piece" of that network and would partake of whatever fruits evolved from research on high-speed networking protocols, Wolff said. That research could well define protocols and technologies that go beyond NSFnet's current switches and the protocols they support. "Some people feel that both OSI and TCP/IP will run out of steam around 200M bit/sec." over remote links, although both can support high speeds over local links, Wolff said.

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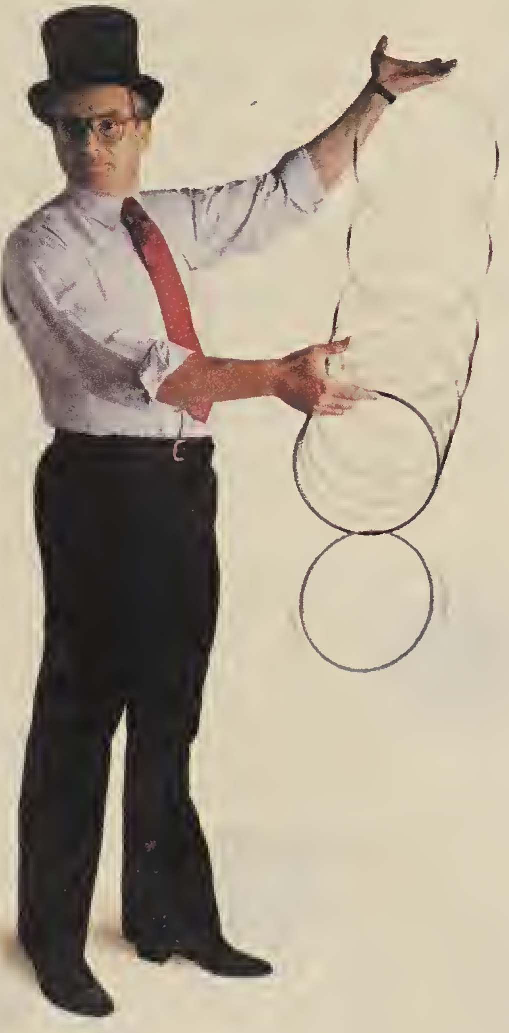

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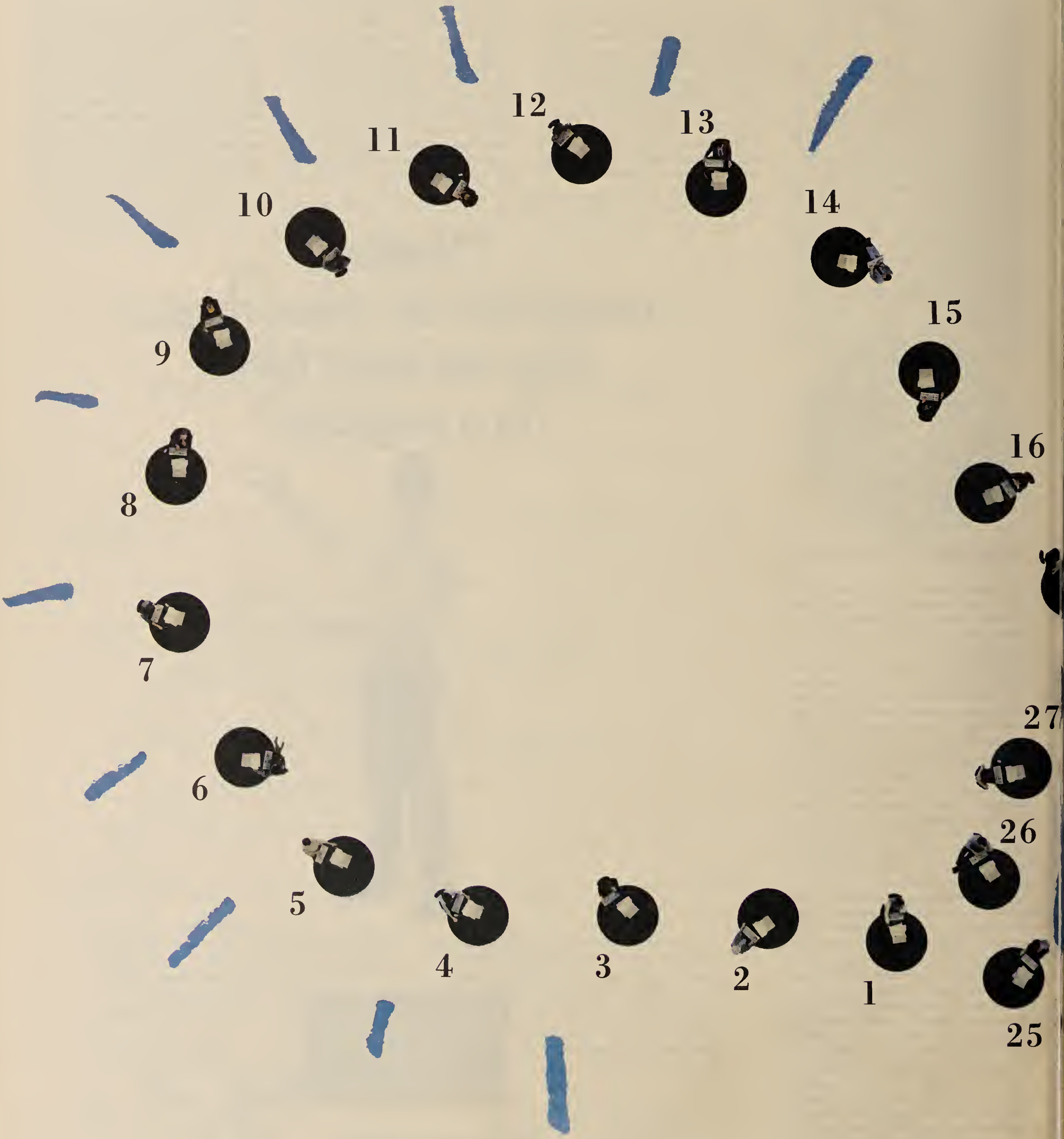
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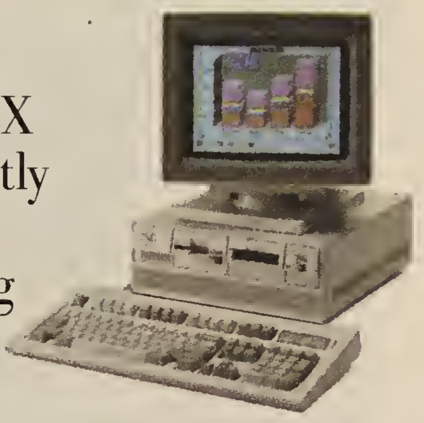

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NEW PRODUCTS

Local-area networking hardware

Fujitsu America, Inc. has introduced Storedge, a modular data storage system for personal computers and networks.

The first members of this family are reportedly available for systems running Novell, Inc. Advanced Netware 286 and MS-DOS 2.0 or higher. According to Fujitsu, the flexible modular structure can be configured with up to three 320M-byte, 5¼-in. hard disks and tape drives, and the units can be linked to provide up to 2G bytes of on-line storage.

The product is said to be ready to "plug and play," and its price starts at $4,595.

Fujitsu America
3055 Orchard Drive
San Jose, Calif. 95134
408-432-1300

PC-Office, Inc. has introduced a miniature local-area network workstation with a 4-by 6-in. footprint.

Called the ST/16, the smart-terminal, 16-bit workstation is reportedly based on Intel Corp.'s Wildcard-88 and was developed for use in personal computer-based systems.

According to the company, the ST/16 is made up of the PC Office backplane and LAN Terminal System, combined with off-the-shelf components, allowing for customization.

Prices range from $195 to $495, depending on component configuration. The LAN Terminal System board may be purchased separately for $195.

PC-Office
4631 Viewridge Ave.
San Diego, Calif. 92123
619-268-3235

Esprit Systems, Inc. has announced the Lanterm Model E interface, a networking terminal that provides users with Ethernet connectivity to local-area networks while providing host communications through Digital Equipment Corp. VT100 terminal emulation.

The product reportedly is able to link the Ethernet controller and the CPU directly, without the need for an Ethernet card being inserted into a bus slot. According to the company, the Lanterm Model E features diskless boot support for running Novell, Inc. Netware O/S software products, read-only memory-based menus for setup and built-in productivity tools, including calendar and key macros.

The price is listed at $1,195.

Esprit Systems
2115 Ringwood Ave.
San Jose, Calif. 95131
408-954-9900

Local-area networking software

Lattice, Inc. has announced a communications library that includes high- and low-level C functions to create applications that perform asynchronous communications.

The Lattice Communications Library reportedly supports DOS, OS/2 and Amigados environments with a set of functions for a variety of protocols.

The library's functions allow programmers to select, open and close a communications port; set bit/sec. rate, data bits, parity, stop bits and buffer size; and send and receive characters from the communications port. The price is $250.

Lattice
2500 South Highland Ave.
Lombard, Ill. 60148
312-916-1600

Lan Systems, Inc. has announced Lanspace, a utility program that supplies additional random-access memory for Novell, Inc. networks. It takes the Novell Netware drivers out of conventional memory and puts them into extended memory, thereby saving 35K bytes of RAM. An additional 21K bytes are saved by letting the user to load and unload Netbios without rebooting, the company said.

The program sells for $495 per file server with unlimited use on the network.

Lan Systems
599 Broadway/ 11th Floor
New York, N.Y. 10012
212-431-8484

Links

Avatar Corp. has announced an enhanced version of its Macmainframe 3270/CUT software package.

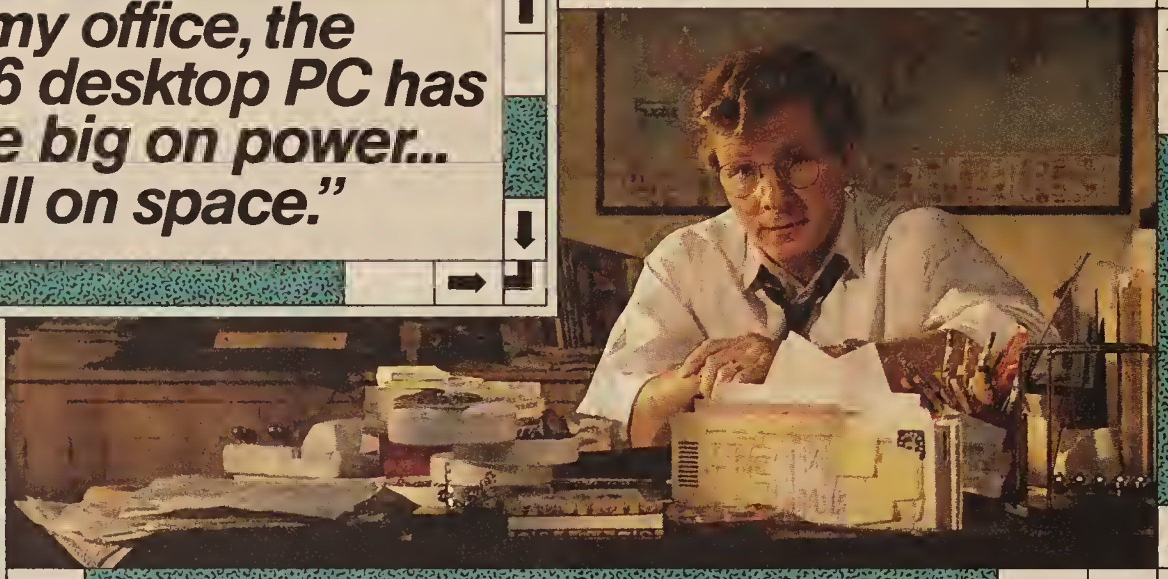
According to the company, Version 2.1 now supports Macmainframe DX, an external box-level solution that allows remote and local IBM 3270 mainframe communications from any Apple Computer, Inc. Macintosh computer.

The software reportedly provides user-definable color support and is priced at $200 per copy. Site licenses are also available.

Current Macmainframe DX users can upgrade existing hardware by purchasing an upgrade kit. The kit contains upgraded read-only memory, a Macmainframe Version 2.1 software package and installation instructions, according to the vendor.

The upgrade kit is available for a price of $100.

Avatar
65 South St.
Hopkington, Mass. 01748
800-289-2526



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MANAGER'S JOURNAL

EXECUTIVE TRACK

John J. "Jack" Archibald Jr. has been named manager of computer operations in the management information systems department of **RIGHA**, a Providence, R.I.-based health maintenance organization.

In his new post, Archibald will manage RIGHA's data center and supervise the organization's computer operators. Prior to joining RIGHA, Archibald held similar posts at Masoneilan and Lebow Industries. He has an associate degree in business administration from Johnson and Wales College and a bachelor's degree in business administration from Bryant College. Archibald lives in Riverside, R.I.

……

Robert J. Becker has joined **Elkhart General Hospital** as director of information systems. In his new position, Becker, 47, will be responsible for all patient-care systems development, financial systems development, information systems and personal computer activities. He will report to Robert F. Granger, vice-president of finance.

Becker was formerly director of system services at Holy Cross Health System Corp. in South Bend, Ind. He holds a bachelor's degree in management from Purdue University and is a past chapter president of the Data Processing Management Association and a member of the Society for Information Management and the Healthcare Information and Management Systems Society.

……

Who's on the go?

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Making systems *and* managing them

MCI's Ditchfield keeps a hand in product development and a foot on the IS gas pedal

BY MITCH BETTS
CW STAFF

PROFILE: Allan Ditchfield

KATHERINE LAMBERT

Position: *Senior vice-president of MIS, MCI Communications Corp.*

Mission: *To build a software-based, intelligent telecommunications network and provide related customer services*

At MCI Communications Corp., it's hard to tell where information systems ends and product development begins, because the MIS department actually creates the software-based products and services that MCI offers to its customers.

"In essence, I'm implanted in the middle of the business," says Allan Ditchfield, senior vice-president of MIS, who is obviously pleased to be in that central position at the U.S.' No. 2 telecommunications firm.

For example, Ditchfield's staff is now working on MCI's forthcoming Integrated Network Management Service, which will allow customers to peer into MCI's systems for the purpose of monitoring network operations. In the future, customers will be able to order new services from their workstations.

Scanning MCI advertisements that tout such features as operator assistance and 800 service, Ditchfield says, "I provided all of the software — not just for billing — to enable it to happen."

In other words, he has no problem marrying technology to business objectives — an issue for many other IS executives — because a full 50% of his work is product-oriented. Ditchfield also has the luxury of having MCI's sophisticated network at his disposal to link the company's regional and local data centers.

Ditchfield, 50, came to MCI in June 1986 after a six-year stint as director of IS at archrival AT&T during the tumultuous days of the Bell System divestiture. From an MCI building not far from the Pentagon in Arlington, Va., he runs an MIS department with a budget of roughly $200 million and a hefty staff of 1,400 people (plus 100 consultants, mostly programmers).

Ditchfield says he is fortunate to have technology champions in the executive suite who tout the MIS department as a key corporate asset.

Stuart A. Mencher, senior vice-president of marketing, claims that MCI's internal software gives the firm a competitive advantage by providing timely and accurate bills with more detailed customer information than competitors provide.

Richard T. Liebhaber, executive vice-president for technology, says MCI basically is "a digital information processing network based on general-purpose computers" such as IBM 3090s and Digital Equipment Corp. VAXs. MCI has always wanted its network software to be run on commercial

Continued on page 66

Brave new world for IS, study concludes

BY CLINTON WILDER
CW STAFF

By the year 2000, 30% of the production cost of an automobile will be for information technology-related components. And that is just the tip of the iceberg in the new business world facing information systems executives, according to a recent Diebold Research Program study on the changing role of IS.

The study details the ever-increasing responsibilities placed upon IS executives and managers to integrate technology more fully with business strategy in manufacturing, marketing, distribution and customer service, as well as to create new business opportunities. "There are challenging and exciting opportunities for today's information technology managers," says Anthony DiRomualdo, associate director of the research program at the New York-based Diebold Group, Inc.

The study outlines four imperatives for the IS function to succeed in the next decade:

- It must link together more and more systems, networks, data, functions and processes, and the IS executive must guide and facilitate the most effective technology infrastructure to achieve those links.
- It must be used to achieve strategic goals, primarily by crossing organizational and functional boundaries. IS executives must forge partnerships with all end-user departments.
- It must seek a different mix of skills in IS employees. In recruiting, training, retraining and rewarding, the IS function must tackle the difficult task of finding, developing and retaining people who can move between the business and technology worlds. However, the study notes an important caveat: Highly skilled technical talent in critical areas such as networking and data management will be in short supply and must not be overlooked.
- At the corporate management level, senior executives must recognize the importance of fully integrating IS strategic planning into the business planning process.

With IS playing a major strategic role, DiRomualdo notes, the successful organizations of the 1990s will be those flexible enough to change both systems and organizational structures in a rapidly changing marketplace.

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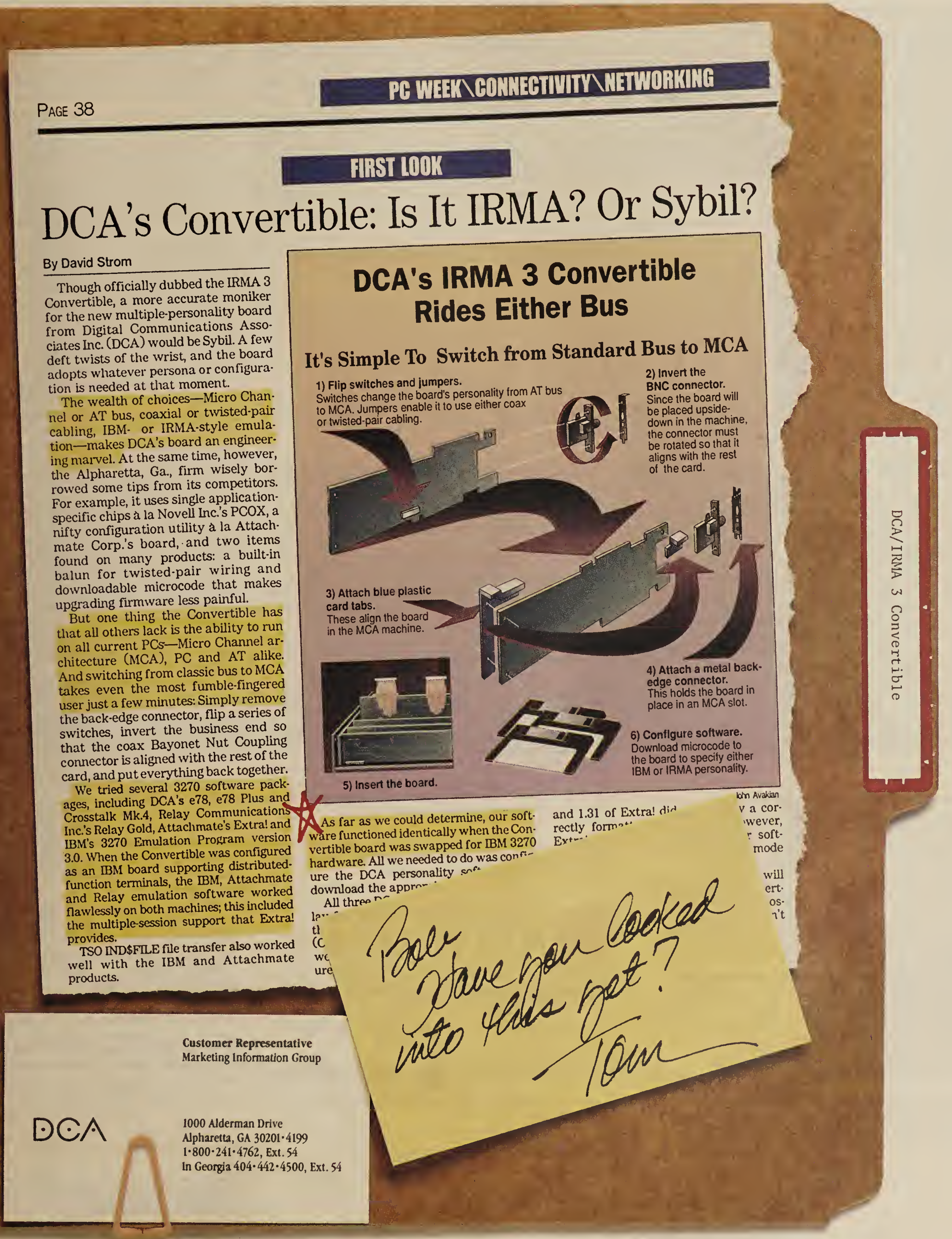

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PC WEEK\CONNECTIVITY\NETWORKING

FIRST LOOK

DCA's Convertible: Is It IRMA? Or Sybil?

By David Strom

Though officially dubbed the IRMA 3 Convertible, a more accurate moniker for the new multiple-personality board from Digital Communications Associates Inc. (DCA) would be Sybil. A few deft twists of the wrist, and the board adopts whatever persona or configuration is needed at that moment.

The wealth of choices—Micro Channel or AT bus, coaxial or twisted-pair cabling, IBM- or IRMA-style emulation—makes DCA's board an engineering marvel. At the same time, however, the Alpharetta, Ga., firm wisely borrowed some tips from its competitors. For example, it uses single application-specific chips à la Novell Inc.'s PCOX, a nifty configuration utility à la Attachmate Corp.'s board, and two items found on many products: a built-in balun for twisted-pair wiring and downloadable microcode that makes upgrading firmware less painful.

But one thing the Convertible has that all others lack is the ability to run on all current PCs—Micro Channel architecture (MCA), PC and AT alike. And switching from classic bus to MCA takes even the most fumble-fingered user just a few minutes: Simply remove the back-edge connector, flip a series of switches, invert the business end so that the coax Bayonet Nut Coupling connector is aligned with the rest of the card, and put everything back together.

We tried several 3270 software packages, including DCA's e78, e78 Plus and Crosstalk Mk.4, Relay Communications Inc.'s Relay Gold, Attachmate's Extra! and IBM's 3270 Emulation Program version 3.0. When the Convertible was configured as an IBM board supporting distributed-function terminals, the IBM, Attachmate and Relay emulation software worked flawlessly on both machines; this included the multiple-session support that Extra! provides.

TSO IND$FILE file transfer also worked well with the IBM and Attachmate products.

DCA's IRMA 3 Convertible Rides Either Bus

It's Simple To Switch from Standard Bus to MCA

1) Flip switches and jumpers.
Switches change the board's personality from AT bus to MCA. Jumpers enable it to use either coax or twisted-pair cabling.

2) Invert the BNC connector.
Since the board will be placed upside-down in the machine, the connector must be rotated so that it aligns with the rest of the card.

3) Attach blue plastic card tabs.
These align the board in the MCA machine.

4) Attach a metal back-edge connector.
This holds the board in place in an MCA slot.

5) Insert the board.

6) Configure software.
Download microcode to the board to specify either IBM or IRMA personality.

John Avakian

As far as we could determine, our software functioned identically when the Convertible board was swapped for IBM 3270 hardware. All we needed to do was conf
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DCA/IRMA 3 Convertible

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BOOK REVIEW

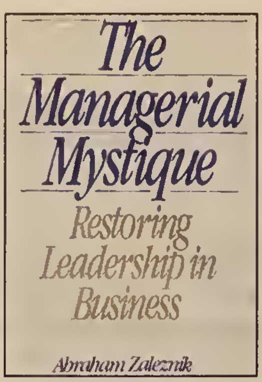
Too many managers, not enough leaders

THE MANAGERIAL MYSTIQUE
By Abraham Zaleznik
Harper & Row, $22.95

What's wrong with American business? It is populated by managers, not leaders, says Abraham Zaleznik in *The Managerial Mystique.*

The book's theme is simple and intuitively obvious. The image of the insufferable, bureaucratic company man who cares only for his own turf is an archetype of odium scarcely in need of having another shovelful of dirt heaped on it. In contrast, charismatic entrepreneurs have been idolized as folk heroes many times over and are hardly in need of another song of praise.

The message of *The Managerial Mystique* may not be new, but it is reiterated with telling intellectual power. This is the age-old theme of the doer vs. the doodler — the manager vs. the leader — set forth with unassailable scholarly logic.



Zaleznik, a clinical psychologist, professor of leadership at the Harvard Business School and author of 12 books, describes the current unhealthy reliance on management as but a link in the chain of business history. It is a link, however, that is rusted and almost broken.

Managers took over business from the heroic entrepreneurial autocrats of the late 19th and early 20th centuries. Some outstanding managers cited are ITT Corp.'s Harold Geneen and General Motors Corp.'s Alfred Sloan. The leaders they replaced were typified by Andrew Carnegie, Henry Ford and J. P. Morgan. But now, Zaleznik says, managers have had their day, and it is time to move on to a new era of more forceful, albeit humane, leadership.

What does the executive of tomorrow do? He must take charge, put himself on the line, risk his reputation to be accountable and get something done. The reward will be the joy of accomplishment both for the executive and his subordinates.

Managers, on the other hand, will inevitably drain a corporation of energy by organizing committees and manipulating office politics to create inefficient stability. The result is loss of productivity for a business and, further, possible psychiatric problems for the executive that come from incomplete self-realization. To Zaleznik, the "managerial mystique" is like a disease that afflicts not only business but managers themselves.

That illness is characterized by a separation of thinking and feeling, which can be clinically diagnosed according to accepted psychological procedure. Zaleznik takes apart the psyches of several management-plagued executives. He finds that some of their problems are due to difficult relationships with their parents.

Although interesting, the chapters that deal with the management problem in these terms risk blurring the book's focus. Are managers simply the bad fruit of an out-of-date chapter in American business, or is the management problem traceable to the negative childhood experiences of those managers? If it is the latter, then it is not a business trend we have to fight against. Instead, parents must be better parents. Is the battle to be fought in the home or the workplace? Is the management problem spawned by a bad business culture or a bad psyche?

Whatever its source, however, once management (as opposed to leadership) sets in, the manager resembles the captain of an oil tanker whose ship is bound for the rocks.

A symptom of the management culture is the notion of deniability, as practiced today in both government as well as business. By creating deniability, subordinates can be blamed for failures that had their genesis in flawed management strategy or directives, thus insulating management from culpability.

It may seem incongruous that Zaleznik should even attempt to codify something as ineffable as leadership, but *The Managerial Mystique* is a convincing case that leadership can be approached as a scholarly subject.

The book, although complex, is still readable. However, one never forgets for long that the author is a teacher. The amply footnoted volume is thorough and has a certain pedantry — drumming home the theme that leadership is good, management is bad. Some executives may find the fire and brimstone of a Tom Peters speech the necessary medicine. *The Managerial Mystique* will appeal to more introspective readers. If the book moves one executive to speak his mind instead of creating a committee, it's worthwhile.

STANLEY GIBSON

Gibson is *Computerworld's* senior editor, software.

Computerworld is initiating a new series of reviews that will focus on business and management books. New books that fit into this arena should be sent to the attention of Glenn Rifkin, Book Review Editor, *Computerworld,* 375 Cochituate Rd., Framingham, Mass. 01701.

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For a copy of the complete contest rules, or a list of winners, send a self-addressed stamped envelope to Communication Networks '90, P.O. Box 9171, Framingham, MA 01701.

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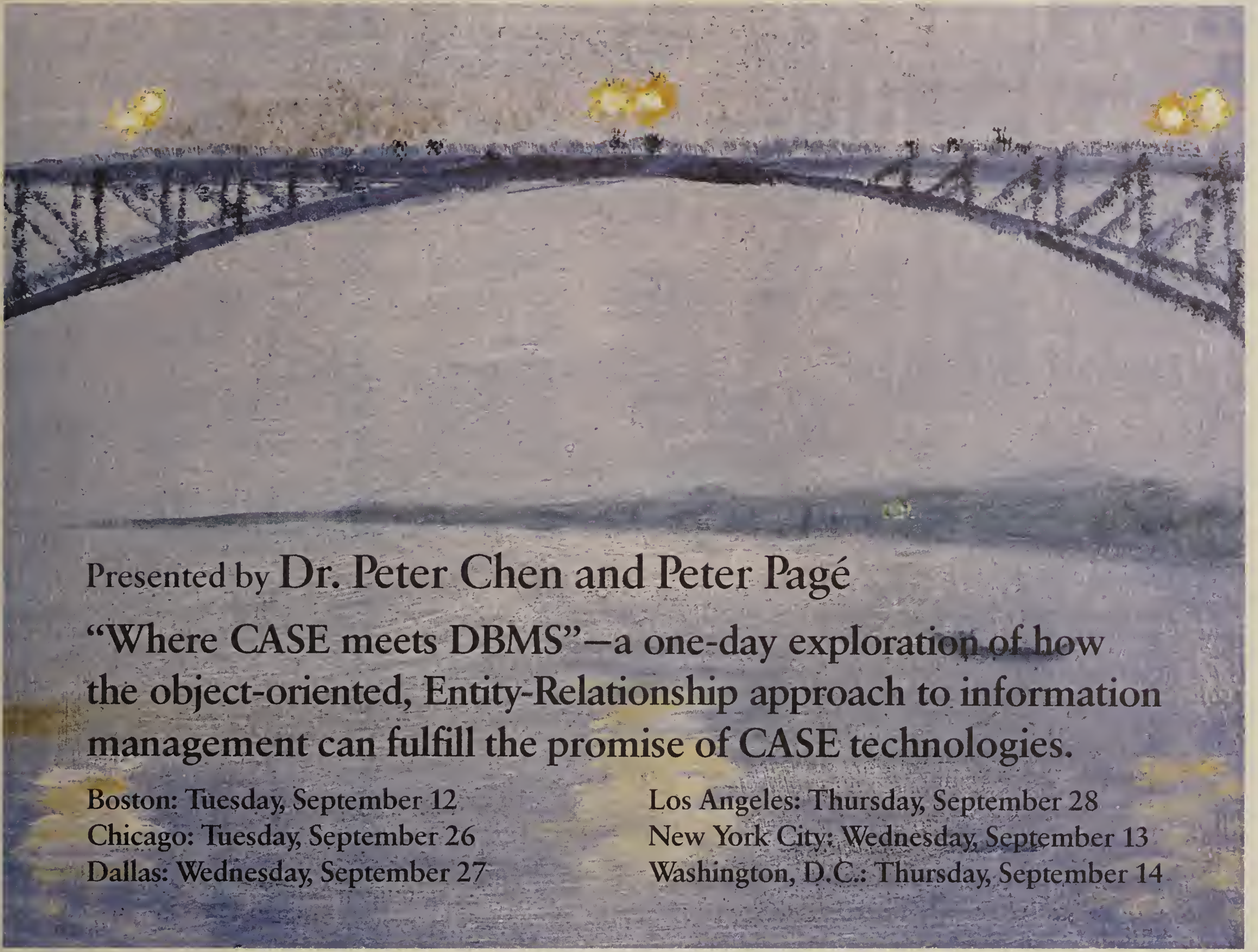

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Making systems

CONTINUED FROM PAGE 59

systems — rather than embedded in telephony equipment — so it can be quickly adapted to customer needs, he explains.

At the very top, MCI Chairman William G. McGowan stresses in public presentations that "we are not only providers of information technology; we are also massive users of information technology." He then proceeds to list statistics about MCI's internal networks, which include 150 local-area networks, 105 T1 lines and an internal MCI Mail usage that exceeds 400,000 messages per week.

While Ditchfield enjoys many advantages that other IS executives only dream about, he faces the challenge of coping with the company's fast growth. Last year, MCI revenues increased 30%, and long-distance traffic over MCI's network increased 32% over 1987.

Meanwhile, the MIS department was helping MCI churn out a nearly constant stream of new products and services. The biggest management challenge, Ditchfield says, is trying to find enough time left over for the basic tasks of "building an MIS infrastructure" for the 1990s.

"If I could just get some breathing room . . ." he says wistfully. But then he adds, "We're not going to get any breathing room, so we'll have to make it ourselves." In fact, one thing Ditchfield says he likes about his job is that "the challenges are immense and constant."

However, MCI's corporate culture of fast action and no bureaucracy borders on anarchy, according to some observers. For example, in years past, MCI had no formal methodology for systems development, Ditchfield says, adding that he now requires more discipline in such areas as testing and documentation to raise the level of quality and professionalism.

"Some people say MCI is a ready-fire-aim company. I'd portray the company as having a tendency to fire-fire-fire — and now we also aim," he says.

The demanding corporate environment can be tough on employees. Ditchfield says the attrition rate was 30% when he came to MCI but now is down to about 13% because "we've found a better process that allows people to work together better."

Nevertheless, he adds, "We want some attrition to occur, because some people aren't going to be entirely happy with MCI. We're going to continue to push people."

Of course, the quintessential MCI person is hard-charging Bill McGowan. What is it like to have him as your chairman? Ditchfield smiles and says, "The phone call you get could be either application-based or technology-based when you have a chairman who is so literate in telecommunications and information systems."

IS builder

With its walls, which are lined with pictures of various buildings under construction, Allan Ditchfield's conference room at MCI doesn't look very high-tech. But Ditchfield says the buildings are really quite appropriate because he is in the business of building systems to support MCI's intelligent telecommunications network.

"I'm not an architect — I was a business management major — but that's how I see systems engineering," he says. "Building programs is a great opportunity for you to become the architect, builder and tester, taking them from plans to operations."

When trying to explain the difficulty of "managing user expectations," Ditchfield again turns to the building analogy: "Users have a tendency to treat our [systems] building process differently than they treat building a house. They understand that if you want to move the [house's] plumbing two feet to the left, the contractor says it will cost another $50,000 and a three-month delay. But they don't understand when I tell them that moving something two feet to the left [in an information system] will cost them two months and $200,000."

MITCH BETTS

TAKING CHARGE

Clinton Wilder

One large pie with extra info

News item: Domino's Pizza is criticized for drivers' safety record; detractors say guaranteed 30-minute deliveries cause speeding and reckless habits.

On the surface, this item may not appear to have too much relevance to information technology. But Domino's has earned the No. 1 spot in the pizza delivery business for the same reason that many other companies are spending millions on telecommunications and information systems. They are all seeking the edge in time-based competition.

In his insightful book *Competing in Time*, Peter G. W. Keen points to examples of time-based competitive success in virtually every industry. From an industrial equipment maker's automatic diagnostic system to the European hotel with a registration desk that doubles as an airline check-in counter, Keen cites firms that have gained an edge by saving their customers precious minutes. Domino's has built an entire fast-food empire on the same concept — and no customer is more time-sensitive than a hungry one.

But Domino's can't deliver pepperoni and mushroom pies over fiber-optic networks. Its network links to customers are the nation's highways and city streets, which in many areas are falling into disrepair as fast as information networks are increasing in speed and reliability. There isn't too much help that computers can give to drivers facing traffic, potholes and a strict time limit.

However, information technology can do a lot to help businesses detour around the physical barriers of our imperfect world. At Federal Express, for example, information on where a package is at any given time is almost as important as the package itself.

Federal Express guarantees that if a package is not delivered on time, the company will be able to tell the customer why, where the package was last tracked and how soon they can expect delivery. That's using information as a competitive weapon.

I'm not suggesting that Domino's should install a worldwide pizza-tracking system. But I do believe the customer's hunger pangs would feel a little better if he knew how close his pizza was when his 30-minute delivery failed to occur.

When I travel on an airplane, I understand that weather, traffic and mechanical problems are beyond the airline's control. But what is not beyond its control is *informing* its passengers what is causing a delay. I'm a lot more comfortable when I know that my plane is 20th in line on the runway and won't take off for 40 minutes than when I'm wondering for 40 minutes what's going on until the pilot finally says, "We're No. 1 for takeoff." I'll return to fly on an airline that tells me.

In a column in *The Wall Street Journal* earlier this year, management guru Peter Drucker observed that information technology is redefining the role of the urban center as the necessary place to do business. Technologies such as electronic mail networks and teleconferencing are changing the needs of people to be in the same location. It's cheaper, easier and safer to move data, not people.

But the movement of tangible goods, whether it is a Domino's pizza or the new blast furnace for your factory floor, will always face the physical barriers of space and time. Information technology can't eliminate a traffic jam or repair a crumbling bridge. But better, faster information delivery can reduce much of the anxiety caused by those physical barriers.

Wilder is *Computerworld*'s senior editor, management.

CALENDAR

The Eighth International Enterprisewide Information Management Conference, "Achieving Success in Strategic Planning," will be held Sept. 6-8 in St. Louis.

The conference will focus on topical areas such as global information and competition, real-world experiences in strategic planning, service industry planning, revitalizing the information systems organization and linking business planning to information technology. Speakers include management consultants, corporate executives and vendor company representatives. The sponsors are Washington University's Center for the Study of Data Processing at the School of Technology and Information Management in St. Louis and IBM's Los Angeles Scientific Center.

For more information, contact EwIM Registration, Campus Box 1141, Washington University, One Brookings Drive, St. Louis, Mo. 63130.

AUG. 27-SEPT. 2

Long Range Information Systems Planning. Chicago, Aug. 28-30 — Contact: American Management Association, 135 W. 50th St., New York, N.Y. 10020.

Southeastern Telecommunications Association Annual Conference and Exposition. Nashville, Aug. 28-30 — Contact: Trade Associates, Suite 200, 12250 Rockville Pike, Rockville, Md. 20852.

XI World Computer Congress. San Francisco, Aug. 28-Sept. 1 — Contact: 11th World Computer Congress, Convention Service Center, P.O. Box 18-P, Denver, Colo. 80218.

National Seminar Series on IBM's AIX. New York, Aug. 29-31 — Contact: Patty Price, Locus Computing, 9800 La Cienega Blvd., Inglewood, Calif. 90301-4440.

The Three Rs of Software Automation: Reengineering, Repositories, Reusability. Chicago, Aug. 29-31 — Contact: C&F Management, Suite 402, 372 W. Ontario, Chicago, Ill. 60610.

SEPT. 3-9

USENIX Large Installation Systems Administration Workshop. Austin, Texas, Sept. 5-8 — Contact: USENIX Conference Office, Suite 613, 22672 Lambert St., El Toro, Calif. 92630.

Achieving Success in Strategic Planning. St. Louis, Sept. 6-8 — Contact: Robert J. Benson, Washington University, Campus Box 1141, One Brookings Drive, St. Louis, Mo. 63130-4899.

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Reaping the full benefits of end-user computing

The connected work-group stage should be next on IS investment agendas

BY RON EVANS

Corporate productivity is declining, despite accelerating investments in office-focused, end-user computing. Today's information systems organizations have the ability to reverse the trend by establishing more effective end-user computing strategies.

In the 1980s, almost 45% of all capital spending has been on information technology. Today, office-focused, end-user computing represents roughly 40% of the total IS investment.

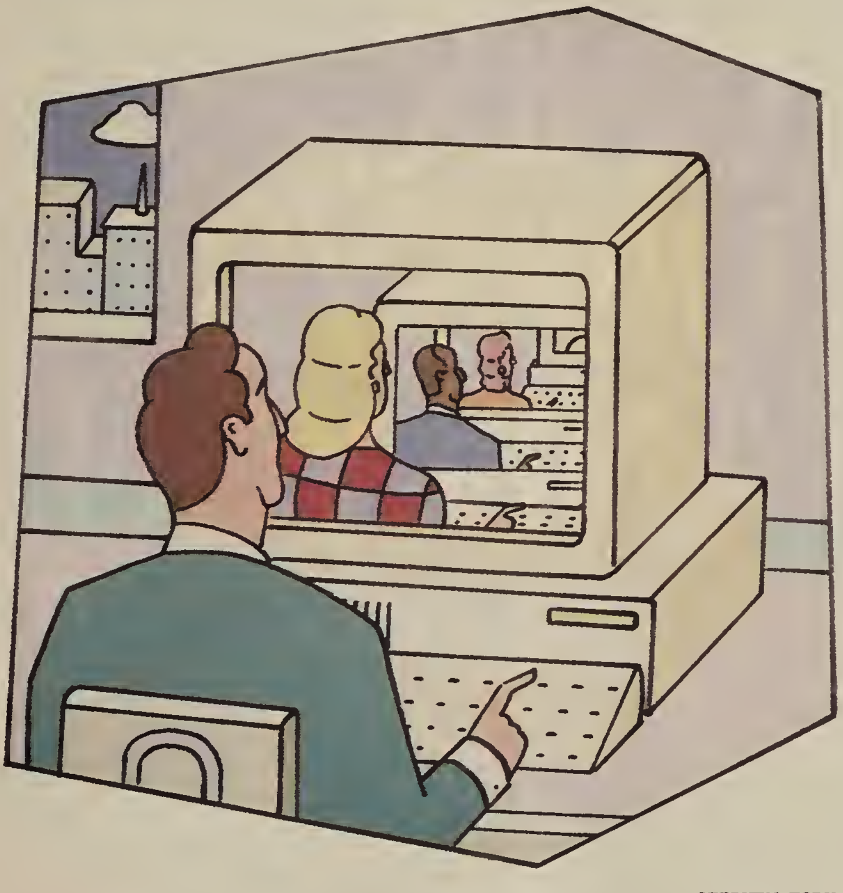
At the same time, many observers say, while blue-collar productivity continues to grow at the same rate that it did before World War II, white-collar productivity is declining at the rate of 1% per year. There is clearly a discrepancy in the investment being made and the payoff being realized.

To investigate this phenomenon, Nolan, Norton & Co. studied 89 large companies in a variety of industries located in a number of countries. The results of the study allowed the identification of three distinct phases of investment in end-user computing (see chart page 72).

The first phase, the personal phase, sees the entry and proliferation of end-user computing through an organization. Based on the knowledge, skills and experience built during this initial phase, the second, connected work-group phase takes end-user computing to new levels of effectiveness and benefits. While the personal phase is an essential starting point, it is in the connected work-group phase that real productivity benefits are realized.

The business transformation phase is the third stage and a final goal, but simply getting their companies to the first and second phases is the major concern of most information systems managers today.

To this end, IS must understand and learn how to manage the distinct characteristics of the first two stages.



STEPHEN TORK

The personal phase

The personal phase defines the time period during which end-user computing enters an organization and achieves first-level benefits. Generally, in this phase, personal computers penetrate the organization at a rate of about one computer to 4½ people.

It is a period characterized by opportunistic use of technology. Individual users make discrete use of the technology to automate the tasks associated with their jobs. They use spreadsheet, word processing and graphics packages to analyze the same financial data and produce the same reports and presentations they once did manually.

Lack of an organizational perspective means that little is done to coordinate this activity. As a result, technologies and applications proliferate as time passes and new opportunities arise. As more powerful technologies are introduced, complex multivendor environments emerge. Interconnections develop to support end users' growing need for data. By the end of the personal phase, end-user computing has usually penetrated the organization quite broadly.

However, knowledge and experience in the use of the technology remain isolated to individual users.

At this point, a centralized end-user support group typically emerges to meet the needs of this environment. This group focuses on supporting individual users in a reactive, problem-solving mode. With a typical ratio of one support person to 50 or more users, the group's primary responsibility is getting the technology running and keeping it running.

As a result, its efforts are focused heavily on user support and maintenance — identifying and installing hardware and software upgrades, responding to user problems and managing the growing infrastructure of resources required to maintain this environment.

User training during this time tends to be focused on technical proficiency with individual packages. Whatever time remains is usually invested in reviewing a

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Evans is director of end-user computing at Lexington, Mass.-based Nolan, Norton & Co., an information technology firm of KPMG/Peat Marwick. This article was adapted from portions of a seminar presented jointly by Nolan, Norton, Corporate Software, Inc. and Microsoft Corp.

……

- **Is PC knowledge isolated in individual users?**
- **Going from task to process automation**
- **Financial payoff could be 10 times amount spent**

proliferating number of new technologies and applications to identify those that meet burgeoning end-user demand. Obviously, this leaves scant resources available for developing critical applications or examining long-term computing strategies.

On average, end-user computing in the personal phase consumes between 15% and 20% of the central IS budget, with the typical investment per user averaging about $3,000 — including hardware, software, support and training.

There is a return on that investment; benefits do occur during the personal phase. However, in most cases, the benefits achieved in the personal phase are task-focused and remain locked in the organization, rarely having any bottom-line or strategic impact.

Connected work groups

In the connected work-group phase, end-user computing becomes integral to the business. While in the personal phase users automate existing tasks with technology, their mission in the connected work-group phase is to rethink work activities within the context of possibilities presented by information technologies. The objective is to use technology to improve the effectiveness of the end user. To achieve this goal, the IS organization must be able to get the right data to the right person. This requires an architected perspective to define the structure of all information technology for doing business.

The architected system acknowledges and complements the way businesses gather and interpret data. That includes access to host applications, file-transfer facilities, electronic mail and personal productivity tools that are consistent in use, sophisticated in function and committed to achieving business benefits.

WHILE THE personal phase is an essential starting point, it is in the connected work-group phase that real productivity benefits are realized.

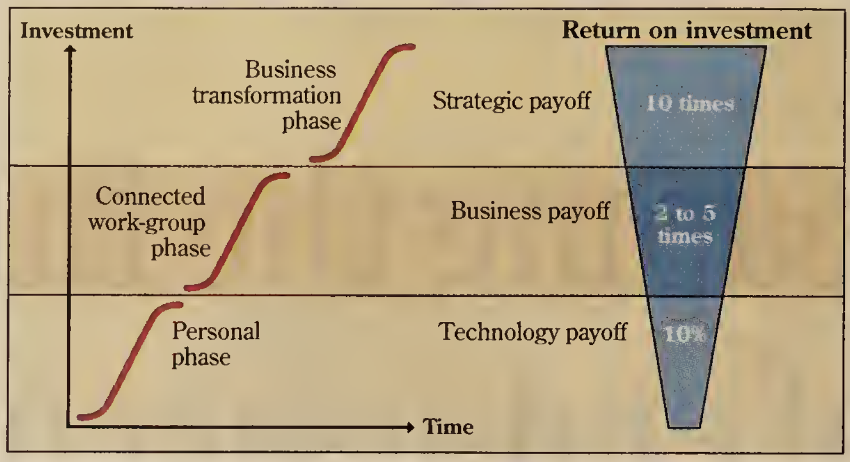
The first step in developing the architected information technology system is to recognize that each computing location — whether it is a sales office, a warehouse, a manufacturing facility or executive offices at headquarters — has its own unique subarchitecture. To develop an appropriate global architecture, information systems must first understand what happens within each of these subarchitectures.

Take, for example, a typical sales office, which carries out order processing, customer accounting and management functions. Leads, orders, products, pricing, customers and prospect data fills out the picture of the information required by the end users there. The users manipulate the data with applications such as spreadsheets, word processing and databases. Communications technology completes the sales office subarchitecture, providing the interconnections necessary to access data from other locations, such as marketing and manufacturing, and transports information via applications such as electronic mail.

In this scenario, a client/server architecture is often implemented to manage large amounts of data efficiently and consistently. The net result is the automation of the sales process, not just related tasks. Sales representatives in the field, using laptop computers and modems, will have access to customer records, updated pricing and inventory information and so on. They will be able to enter or update orders while at the customer site, thereby providing an increased level of service and an additional selling point for the organization. In this way, a corporatewide architecture is created by integrating the subarchitectures from all computing locations.

The three phases of end-user computing

While the expense of implementing a formal end-user computing strategy gets higher over time, the overall financial return can increase dramatically



SOURCE: NOLAN, NORTON & CO.

CW CHART: FRANK C. O'CONNELL

In the connected work-group phase, management should take a long-term view of end-user computing. The support organization can be refocused to leverage the business-mission expertise of the end-user computing support personnel. Additional support in the tactical areas of evaluation, acquisition, support and maintenance can be offloaded to third-party suppliers. Service-oriented suppliers become the backup support to

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lower level support personnel, allowing support personnel with more refined abilities to concentrate on critical systems development, organizational analysis and technical and strategic architectures. Progress in these areas provides the greatest payback in strategic impact on an organization.

Making the transition

The transition to the connected work-group phase may not be easy. It usually requires large, focused investments in planning, technology and training; committed partnership among business, end-user computing and IS organizations; and restructuring the support organization to minimize nonstrategic costs.

To reach the connected work-group phase, upper management must rethink the role of information technology in the pursuit of corporate business goals. The organization must make a transition from thinking in terms of automating tasks — doing the same things better or faster — to transforming processes — conducting business in entirely new ways.

> ON AVERAGE, END-USER COMPUTING in the personal phase consumes between 15% and 20% of the central IS budget, with the typical investment per user averaging about $3,000 — including hardware, software, support and training.

Ironically, the focus of the personal phase of end-user computing may have created both the technological and organizational barriers to making this transition. The bubble-up implementation of technology and the task orientation prevalent in the personal phase may have resulted in isolated pockets of experience that are focused on existing activities. Technical barriers include numerous incompatible environments, in which an almost constant churning occurs as new technologies are introduced. The resulting data infrastructure stays rather thin and is typically absorbed in the day-to-day, tactical support of the technology — that is, keeping it running.

Creating the ability to restructure business processes to take advantage of both emerging technologies and past learning represents the biggest challenge to IS in making the transition to the connected work-group phase. Pilot projects that explore new ways of working together must be undertaken in select business units. These units must be also managed by enlightened executives who are genuinely committed to changing the way business is conducted.

The objective of training programs must be to enable users to embrace a change in process, not just to understand product functionality. Competitive awareness must be emphasized over technology awareness.

Thus, information center and IS support staffs as well as management should consider forming active partnerships or business-unit councils. These councils should be responsible for directing all IS investments, regardless of technology platform.

Consider the case of a large pharmaceuticals company that moved its organization-design group from the human resources function to IS. The company formed a special group that contained members of the organization-design, systems development and end-user computing staffs. The new group was chartered to help departments that showed genuine interest in moving to a connected work-group environment develop the business case and implement pilot projects. Because of this emphasis, interested business units were required to explore organizational restructuring before they could get the funding necessary to become connected.

Investment focuses

In addition to organizational restructuring, implementing connected work-group architectures will probably require large, focused investments in next-generation operating systems such as OS/2, local-area networking products and communications technologies.

More important, the commitment to an advanced computing architecture such as the client/server model is imperative. A multitude of platforms are connected to the LAN, including PCs running Unix, DOS and OS/2, as well as Macintoshes and mainframes. The "connected user" will have access to host applications — either mainframe or departmental — as well as the ability to transfer files within and beyond the LAN.

One key to the success of these enabling technologies is an integrated technical environment that frees the end user from the need to master numerous interfaces, protocols and operating systems. One obvious benefit is that training is focused on learning the business application rather than on the technology behind it.

Inherently, common user access will lead to faster training, less retraining and effective cross-training on new or multiple applications.

Getting to the connected work-group phase will also require a refocusing of end-user support personnel. In order for a

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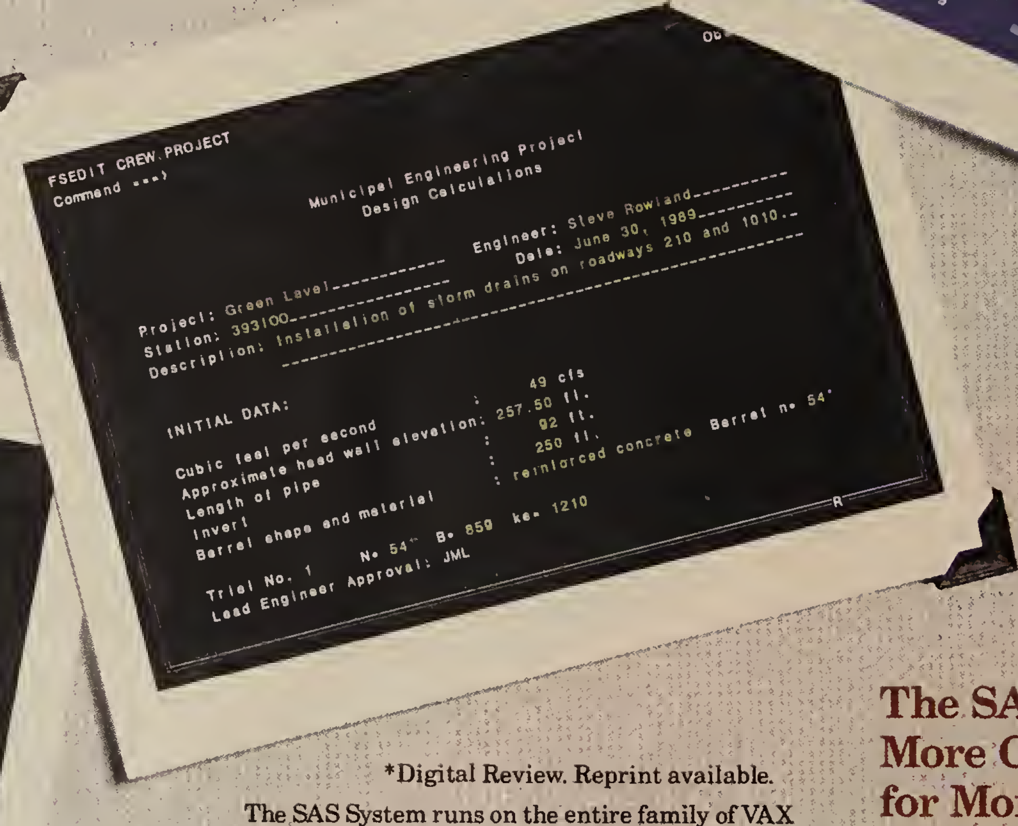

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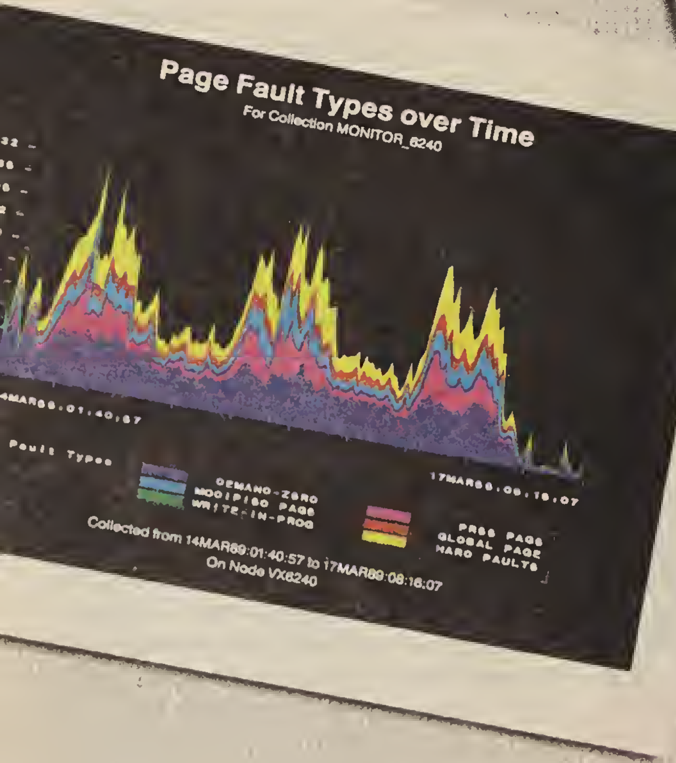
                         Municipal Engineering Project
                              Design Calculations

                                   Engineer: Steve Rowland__________
Project: Green Level_____________      Date: June 30, 1989__________
Station: 393100__________________
Description: Installation of storm drains on roadways 210 and 1010._
             ________________________________________________________

INITIAL DATA:
                                      :     49 cfs
Cubic feet per second
Approximate head wall elevation:  257.50 ft.
Length of pipe                    :     92 ft.
Invert                            :    250 ft.
Barrel shape and material         : reinforced concrete   Barrel n= 54"

Trial No. 1        N= 54"   B= 859   ke= 1210
Lead Engineer Approval: JML
```



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> CREATING THE ABILITY to restructure business processes to take advantage of both emerging technologies and past learning represents the biggest challenge to IS in making the transition to the connected work-group phase.

corporation to maximize its investment in information technology, it will have to leverage the business-mission knowledge of its IS personnel and minimize the cost of nonstrategic activities. Part of the solution for your company may be to offload generic, tactical support activities — for example, product evaluations, compatibility testing and upgrade procedures — to such appropriate third parties as vendors, resellers and distributors.

By relinquishing some tactical support activities, IS' internal resources can be refocused to concentrate on guiding the design of a strategic architecture to facilitate the advanced end-user environment of the connected work-group phase. Further, end-user support personnel should be better able to assist end users in rethinking the tasks and activities of their jobs in light of all the possibilities presented by technology.

The transition to the connected work-group phase will require a larger investment, as much as 50% of the overall IS budget, with the cost per user reaching $30,000, which includes hardware, software, networking, communications, training and so on. However, the payoff can be two to five times the investment, compared with the estimated 10% return on the smaller investment in the personal phase.

One example of the difference in the payoff provided by process automation vs. task automation is seen in a savings and loan institution that attempted to automate its three-week loan approval process by providing PCs to each of the five application reviewers. After purchasing five PCs, software and training, the bank increased its loan application processing capability by 30%.

However, the new two-week approval cycle did not provide sufficient competitive advantage to create the corresponding increase in demand that would make the new capability pay off. The bank had successfully automated the tasks associated with the process, but the real benefits were to be realized only by automating the process, which the bank eventually did.

It recognized that the application review process was dependent on access to historical data that resided on the bank's corporate mainframe and among outside database services. The appropriate sub-architecture, the bank finally realized, consisted of PCs connected to the mainframe and to outside database vendors. After a major process transformation effort, the bank today offers next-day loan approval, and the increased traffic is handled by just two application reviewers.

There are four steps that lead to the connected work-group phase and the benefits that it promises. First, make the case for commitment to the connected work-group phase. Most corporations have already built, or are building, the prerequisite knowledge base and recognize that end-user computing will play a leadership role in future corporate information systems.

Second, become proficient in the personal phase. Encourage end users to begin taking responsibility for learned tasks, such as finding the fonts on their hard disks without having to call for support. Begin consolidating resources for greater efficiency, including considering the use of tactical support services from third-party suppliers. Corporate management must see that resources become better focused on business-critical issues.

Third, initiate and support connected work-group pilot projects to pioneer this new environment. Identify and test new approaches to business processes.

Finally, call for an architected view of information technology, including accessible data, integrated applications, flexible communications and advanced technologies. The full benefits of the connected work-group phase will not be achieved until a rational structure is provided for information technology across the organization.

All organizations have seen the positive impact that end-user computing can have on their productivity. However, the benefits achieved to date have been isolated and limited. End-user computing has the potential to significantly affect the way an organization does business. The development of a conscious program for change will allow it to happen. •

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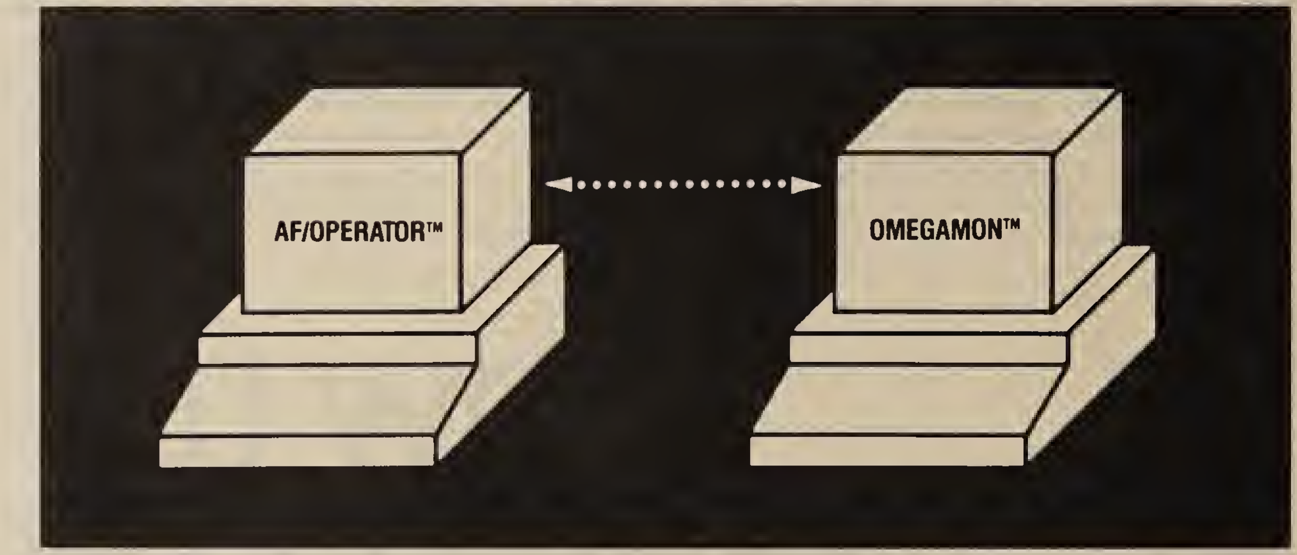

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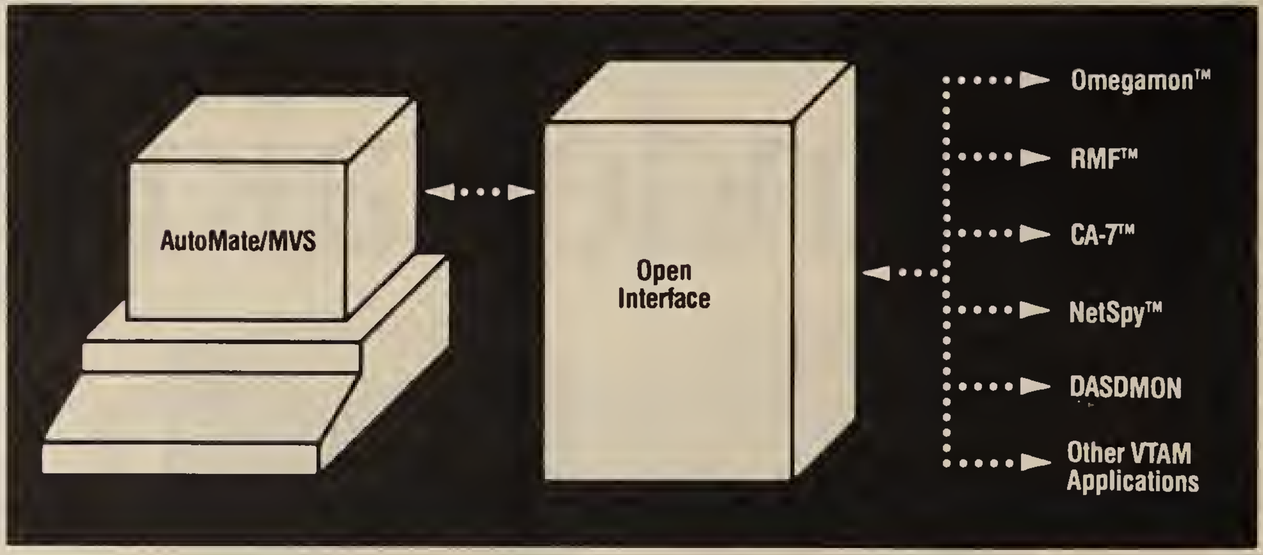

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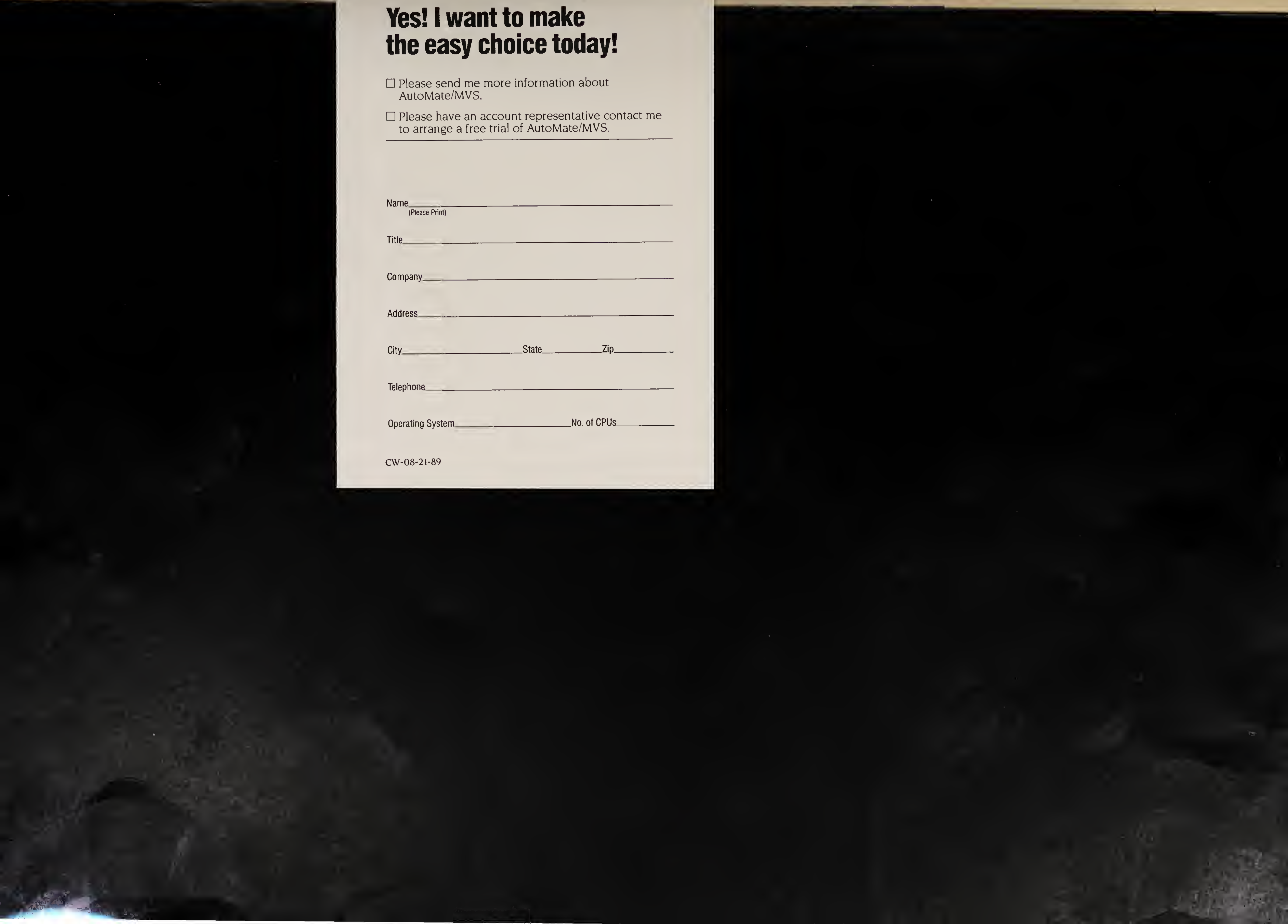

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INSIGHT

Peter Bartolik

Storm watch in effect

Does anyone really know what's going on in the industry these days?

The erratic performance of computer hardware and software vendors is sending up storm warnings on Wall Street, and, for once, the investment community may be right on the money.

With a few high-flyers rocketing along to ever greater profit and revenue benchmarks and many former stalwarts mumbling about currency exchange rates, increased costs of sales and difficult market conditions, investors can hardly be blamed for retreating to the sidelines.

What is obvious to the investment community is that the computer industry is scrambling to deal with changing technological realities and in the process may be digging a deeper hole.

Through dimly lit windows, the casual observer sees this:

- The prospect of supercomputing-class products screaming into a commercial information systems processing environment has vanished into thin air.

Continued on page 77

CONFRONTING MERGERS

When your vendor is bought

BY PHILIP J. GILL
SPECIAL TO CW

NICULAE ASCIU

Information systems managers who have seen their suppliers merge or be acquired remain relatively unfazed; they cite both positive and negative consequences of the deals. However, the growing scope of buyouts among vendors is reinforcing the commitment of managers to some precautionary strategies and tactics.

In the past, uncertainty in the computer industry has often driven users to the security of the local IBM sales representative. Today, however, turmoil generated by computer industry consolidation is leading more IS managers to see their safety net in open systems rather than in IBM or other industry giants.

Mergers among suppliers of hardware and software are also prompting IS managers to avoid the companies they view as buyout candidates, thus assuring that they have access to source code for purchased software and can develop contingency plans for the takeover of a vendor.

Despite IBM's traditional position as the industry comfort zone, Wayne L. Bell, data center manager at Dr. Pepper Co./Seven-Up Companies, Inc. in Dallas, does not think the spate of mergers and acquisitions will strengthen IBM's appeal to users.

IBM may be the biggest, Bell says, but users know it is not necessarily the best, and it is not his first choice for certain key IS purchases. The same goes for other large vendors, Bell says. "I particularly don't like to buy my software from hardware vendors like IBM," he says.

Instead, IS managers say they have begun to weigh seriously a move toward open systems such as Unix. "We want to keep our options open, not close them," says Jim Ault, information services director at Creighton University in Omaha.

"It's easier to go with a major vendor, but I sure would hate to see this industry reduced to three or four large companies," says Eric Thomas, director of information systems and services at John Lincoln Hospital in Phoenix, who adds that he frets over what impact such a development would have on entrepreneurship and innovation.

"The concept of open systems and multivendor computing is a very good one," Thomas says. "My hope is that it ends up being truly open. They've promised standards before, but then each vendor implements these things differently, and it gets vendor-dependent again. I'm skeptical, but I sure hope it works."

Harold Cole, data processing director for

Continued on page 77

Embattled Phoenix seeks CEO

BY NELL MARGOLIS
CW STAFF

NORWOOD, Mass. — In light of the recent litany of woes at Phoenix Technologies Ltd., including a staff layoff after a $1 million quarterly loss, last week's news that the company is hunting for a new chief executive officer startled few.

However, company insiders and industry observers insisted the departure of former CEO Lance Hansche from the front office is not a demotion. Rather, they said, his segue from CEO to executive vice-president in charge of Phoenix's computer and business development group is recognition that both the man and the company will be best served if Hansche is allowed to pursue the talents that led several sources to refer to him as a "market visionary."

"This might not be a lay-up, but it's the right step for Phoenix," said David Bayer, who follows the firm for Montgomery Securities in San Francisco, which also participated in underwriting Phoenix's initial public offering. "I think Lance recognizes where his talents lie." Those talents, Bayer said, were among the technological and conceptual strengths that fueled Phoenix's stellar rise from sales of $2.4 million to $44.8 million in revenue in its first five years.

"Now Phoenix needs a CEO who can ask, 'Where are sales? Where are the numbers? Where are the expenses going?' That's not Lance's forte," Bayer said.

One man whose forte it is, analysts agreed, is Phoenix board member Theodore Joseph, the longtime veteran of Honeywell, Inc. who served a stint as Phoenix's president and chief operating officer and now will occupy the CEO's office on an interim basis. Joseph is not a candidate for the permanent job, said Phoenix spokesman Bruce Crane. Though he could be a model of the seasoned manager the search committee is seeking, Crane said, "Ted's real ambition is to start his own company."

Inside

- TOPS refutes claims of problems, dissent. Page 75.
- Consolidation could lead to antitrust claims. Page 77.

A method to Racal telecom strategy

BY ELISABETH HORWITT
CW STAFF

FORT LAUDERDALE, Fla. — Unlike some of its competitors, communications equipment vendor Racal-Milgo, Inc. seems to have some method behind its recent bout of merger-mania. Through an aggressive strategy of OEM agreements, internal product development and acquisitions — three so far this year — the company has carved out a much stronger position in the crowded and cutthroat telecommunications market, according to Jack Freeman, a senior analyst at Boston-based consulting firm The Yankee Group.

Racal-Milgo, a subsidiary of $2.7 billion UK company Racal Electronics PLC, needed to expand beyond its roots in the modem market, "which is not a growth area," said Racal-Milgo's recently elected president, James Norman. A related aim was for Racal-Milgo to become a provider of the range of equipment users need for their increasingly complex networks, Norman indicated.

Racal-Milgo's Norman

In its pursuit of this strategy, Racal made the following moves during the past few years:

- It merged sales and manufacturing organizations for the Racal-Milgo leased-line modem division and Racal-Vadic dial-up modem division, "since customers no longer make as much distinction" between the two types, Norman said.
- It entered the T1 market, first through an agreement to resell Digital Communications Associates, Inc.'s high-end System 9000 line, and then through its own midrange product, the Omnimux 8000. According to Norman, Racal deliberately chose to source out high-end multiplexers because "we felt we had the expertise to do a super job in T1 if we didn't bite off more than we could chew."
- It entered the local-area network market by acquiring Interlan from Micom Systems, Inc. earlier this year. By integrating Interlan's products with its own T1 equipment, Racal-Milgo will be able to "make hay" with the exploding LAN-to-LAN connectivity market — "provided it can cope with Interlan's cultural problems, which Micom choked on," Freeman said.
- It launched itself into fiber-optic systems through the acquisition of Quanta Communications Systems earlier this year.
- It entered into satellite services through the acquisition of Skynetworks.

Concurrent with its expansion into new markets, Racal-Milgo has worked energetically to integrate its proliferating product lines — both organizationally and in terms of network management.

The biggest problem users have is integrating increasingly complex network systems, Norman said.

Racal-Milgo is now addressing this need through its integrated network management strategy, code-named Sunrise. The vendor offers Multi-

Continued on page 75

IN BRIEF

Ever a bridesmaid

Graphics systems vendor **Adage, Inc.**'s urge to merge was frustrated once more when **General Business Investment Corp.** (GBIC) staged an eleventh-hour bolt from negotiations after the companies failed to agree on terms. Earlier this year, merger plans between Adage and **Multiflow, Inc.** also fell through. According to Adage president James Norrod, GBIC — part of an investor group that owns approximately 19% of Adage — may well look for an alternate route to gain control of its former intended target. Adage, meanwhile, will continue its search for the right corporate mate.

. . . .

New Wave hits Japan

Two weeks after a preliminary ruling in the **Apple Computer, Inc.** v. **Microsoft Corp.** and **Hewlett-Packard Co.** look-and-feel lawsuit took some pressure off the defendants, HP announced plans to market its New Wave software through Canon, Inc. in Japan. Canon will develop, in cooperation with HP, New Wave for MS-DOS, OS/2 and Unix for the Japanese market.

. . . .

CEO shuffle, part IV

Datapoint Corp. has named Michael Michigami to replace ex-Chief Executive Officer Robert Potter, who resigned last week. Michigami, former president of United Technologies Corp.'s Control Systems division, is the fourth Datapoint chief in five years. Though Datapoint returned to profitability in 1988 under Potter, it is expected to post a loss for the fiscal year ended July 31.

. . . .

Mead Data snags ex-IBMer

The former technical director of IBM's AIX Systems division has signed on as technology chief at electronic news service company **Mead Data Central, Inc.**, purveyor of the Nexis and Lexis research and information services. Claymon Cipione's hiring is part of the company's plan to boost financial commitment to technology development.

. . . .

MCI founder heads north

MCI Communications Corp. founder John Goeken has crossed the border to Canada, where he will become director of Cam-Net Communications Network, Inc. The Vancouver-based telecommunications company serves the $8 billion Canadian market.

NICKELS & DIMES

Bolstered by a 30% jump in its traditional, or non-General Motors, business, **Electronic Data Systems Corp.** registered a 10% increase in net income and a 15% rise in total revenue in the second quarter, the Dallas-based company announced. EDS, a wholly owned subsidiary of General Motors Corp., said that for the quarter ended June 30, net income rose $9.2 million to a record $104.9 million, compared with $95.7 million in the corresponding period last year. Second-quarter revenue increased from $1.20 billion a year ago to $1.38 billion in 1989.

Software vendor **Borland International, Inc.** in Scotts Valley, Calif., reported that net income for its first fiscal quarter increased 216%. For the quarter ended June 30, Borland had a profit of $1.6 million, compared with $501,000 a year earlier. Revenue increased to $23 million, from $21.9 million.

First-quarter net earnings of $13.1 million were up 12% from $11.7 million a year ago, according to **Computer Sciences Corp.** Earnings per share were 82 cents, compared with 73 cents a year earlier. Revenue for the quarter ended June 30 rose 14% to $342.1 million from $299.3 million.

Zenith Electronics Corp. reported a net loss for the second-quarter 1989 of $13 million, or 49 cents per share, compared with a loss of $12.1 million, or 46 cents per share in the second-quarter 1988. The loss was principally caused by currency value shifts, increased interest expense and lower margins on computer product sales. Zenith's sales in the second quarter increased 15% to $676 million.

Printer maker **Dataproducts Corp.** in Woodland Hills, Calif., reported revenue of $83.3 million and net income of $17,000 for the quarter ended June 24. This compares with revenue of $85.4 million and net income of $810,000, or 4 cents per share, for the same period a year ago.

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Reports of decline are 'greatly exaggerated,' TOPS argues

BY PATRICIA KEEFE
CW STAFF

ALAMEDA, Calif. — In recent weeks, the TOPS Division of Sun Microsystems, Inc. has spent almost as much time combating "ignorance" about alleged internal dissent and technical problems as it has promoting efforts to broaden the reach of its distributed network server software.

The reports of TOPS' decline are greatly exaggerated, according to the firm, though rumors of problems persist.

TOPS has been shadowed by tales of slowing sales, database compatibility issues, the delayed and since scrapped Version 2.2, the departures of a number of marketing executives and speculation that Sun's interest in TOPS and its technology has waned. Sun's alleged lack of interest is fueled in part by the need to address its first-ever quarterly loss and several high-level defections.

TOPS was bought in April 1987 by a then high-flying Sun, which wanted to sell its workstations through TOPS' dealer channel and add Sun's Network File System support to TOPS software in order to bridge DOS local-area networks to Sun's Unix networks. A newly sobered Sun has since backed off those plans, giving TOPS back its autonomy.

Meanwhile, industry murmurings reached such a crescendo that at least one TOPS employee felt compelled to ask Sun President Scott McNealy whether the unit was for sale. It is not, said Richard Shapero, TOPS vice-president and general manager.

VP Shapero *is up on TOPS*

"Sun is very high on TOPS," added Robert Clark, an analyst at Santa Clara, Calif.-based market research firm Infonetics and former director of TOPS product marketing. Shapero also claimed TOPS sales are not down. "We grew by 400% last year, and we don't expect a repeat this year," he said.

Meanwhile, TOPS executives were caught off guard by reports of incompatibilities with multitasking databases, which they subsequently tracked down to one product — Fox Software, Inc.'s Foxbase+. Fox used some Appletalk File Protocol calls that TOPS did not support. This will be corrected in the next release of Foxbase.

Meanwhile, a database called Omnibus reportedly ran into trouble related to incompatibilities down at the file- and record-locking level. Shapero said that problem also had been resolved, adding that TOPS was unable to corroborate other reports regarding data corruption issues. "But we did uncover the potential for other databases to do something that would create that problem," Shapero said.

Users waiting for TOPS 2.2 can stop. TOPS has decided to move ahead to Version 3.0 "because there's enough new and different," Shapero said.

Racal

CONTINUED FROM PAGE 73

link 4, which is said to allow the user to access up to four network management systems on different windows of the same workstation. Racal-Milgo's next step will be to provide a common database and command structure through support of industry standards such as Open Systems Interconnect, as well as AT&T's Unified Network Management System and IBM's Netview, Norman said.

In addition, Racal-Milgo has organized its sales and support forces to meet customers' integration needs. One organization specializes in designing and optimizing "turnkey network solutions;" a second, the Industry Sales Group, addresses the needs of individual organizations and vertical industries.

Racal-Milgo's strategy has enabled it to "come up against the big guys," Freeman said. He added that in the systems integration arena, "We have noticed over the last year and a half that they are coming up on clients' short lists, along with Martin Marietta, Computer Sciences Corp. and EDS." In the equipment arena, Racal is appearing on the same list as Network Equipment Technologies, Inc. and Digital Communications Associates, Inc., Freeman added.

Racal's success is all the more impressive because the company easily could have fallen by the wayside, Freeman said. "They missed out on the T1 equipment explosion and didn't have the world's most modern line of packet switches, modems and muxes," he said, "but they have managed to sell comfort as a systems integrator that can put the equipment together and manage it, even if it's only 10% Racal equipment." Proof of the success of Racal's strategy lies in the company's steady growth. The Racal Data Communications Group reported $500 million in revenue for fiscal 1989, an 11% growth in revenue from fiscal 1988.

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Safeguards

FROM PAGE 73

the South Carolina Department of Education in Columbia, contends that the wave of mergers and acquisitions of suppliers is not an issue to spend a lot of time on. In fact, he says his department does not worry about it at all, even though Computer Associates International, Inc. has bought Cullinet Software, Inc. and its IDMS/R relational database management system, which the department uses.

First, Cole says, if managers have concerns about the longevity of a vendor, they probably should not be dealing with the firm in the first place.

Second, he says that his organization's contracts for software purchases contain a provision that guarantees a copy of the program's source code if the product should be discontinued or its supplier goes under.

Cole's department also relies on its own skills if the worst happens to a supplier or product in the aftermath of an acquisition, he says. "It's not like we couldn't work our way out of it," he says. "As long as it's a stable product, we can continue to use it and take care of it ourselves."

Ault, who is the president of USE, the largest organization for Unisys Corp. 1100 users, reports one hit and one miss with computer industry mergers and acquisitions thus far.

Creighton's Ault

Concerning products from the former Sperry Corp. and Burroughs Corp., now combined as Unisys, Ault is enthusiastic. "The bottom line is, they have gotten better," he says. "They are better as a new company than the two were in their earlier forms."

Among the benefits Ault says he has seen are improved price/performance in Unisys products. Also, because of the company's commitment to making incompatible systems architectures work together, it has developed a lot of useful knowledge in communications among disparate hardware, he says.

As satisfied as Ault is with Unisys — and despite differing reactions elsewhere — he is down on CA. The university was a long-time user of the DB4 database management system and Resource Management System human resources program from Uccel Corp., which Computer Associates acquired two years ago. Ault says service and support have gone downhill since the acquisition to the point where the university has stopped all new applications development with DB4.

Because of this experience, Creighton has become one of the few organizations to plan for mergers or acquisitions of computer vendors, weighing whether prospective suppliers might be someday merged or acquired.

Dr. Pepper's Bell

Ault and his boss, the vice-president of operations, also scrutinize service. "If the service is bad, we have to move on," Ault says. "There's no point in wasting time and energy arguing back and forth. If the vendor isn't your partner, what's the point?"

For the most part, IS managers report that very little has changed — for good or ill — when new owners or management have taken over vendors. IS consultants agree. "I've not seen any complaints, pain or discomfort over the change of products from one vendor to another with our clients," says George Hathaway, a partner at Index Group, Inc., a Cambridge, Mass., consulting firm.

Hathaway attributes such calm in the face of possible uncertainties to the fact that acquirers have generally bought not just products but also the people who support them. That approach tends to calm the waters at Dr. Pepper: "We prefer to deal with people we've had success with," Bell says.

Jay Park, the director of data processing at Fisher Camuto Group, a Stamford, Conn.-based manufacturer of women's shoes, has a typical reaction to computer industry mergers. Fisher Camuto uses the Datacom/DB relational database management system, which CA acquired from ADR Corp. about 1½ years ago.

"CA is doing exactly what it said it would do when they bought the product," Park says. "They are keeping up support, they have issued a new release schedule, and they are keeping to it."

In fact, Park says his organization has actually benefited — albeit in a small way — from the acquisition. Like many users, his IS shop used both ADR and CA products. Since the acquisition, product support has been consolidated at CA. "That saves us time," he says.

Fisher Camuto's Park

Park and others believe the trend toward increased consolidation of suppliers in the computer industry through mergers and acquisitions will continue.

To cope, he suggests that IS managers fall back on tried-and-true methods. For one thing, they should place a strong emphasis on product strength and technology.

"That is, you evaluate the strength of the product and the reputation of the vendor, and the development of the product," Park says. "If a product has a good reputation and market demand, the new owner will put up the effort to keep it marketable."

For Thomas, the threat of continued mergers and acquisitions means that IS must use some common sense and a little blind faith. "Once you've decided to buy, you've got to believe that that person is going to be around for a while, or don't bother buying the product in the first place," he says.

However, Thomas questions whether developing contingency plans for possible mergers or acquisitions among suppliers is a useful exercise.

"There's only so much you can do," he says.

Be prepared

In response to computer industry mergers, IS managers are trying to do the following:

- Give greater consideration to open systems
- Ensure user access to software source code
- Consider mergers in weighing purchases
- Place greater value on the popularity of products
- Form contingency plans for mergers of suppliers

CW CHART: FRANK C. O'CONNELL

Antitrust fears

Information systems managers generally agree that the computer industry will continue to undergo consolidation. In the case of hardware vendors, they are concerned about antitrust violations, particularly the possibility that prices may rise as competition fades. "Big is not necessarily bad, but I don't like to see that happening because then our choices are limited," said Wayne L. Bell, data center manager for Dr. Pepper/Seven-Up Co., Inc. in Dallas.

With many competing suppliers, users can compare prices, play competitors against one another, wrangle discounts and pursue other tactics to stretch the IS budget, but there will be less opportunity to do so with consolidation, Bell said.

As hardware companies join hands, they might "push customers around," said Harold Cole, data processing director for the South Carolina Department of Education in Columbia. But it is also important for vendors to be large enough to provide thorough support, he added. In the software industry, minimal capital is required for a company to get up and running, which encourages continued competition, he said.

PHILIP J. GILL

Bartolik

FROM PAGE 73

- Mainframe vendors are scrambling to justify big-bucks proprietary investments in the face of ever more powerful, commodity microprocessor technology.
- The minicomputer market, as we've known it, is dead, dead, dead; like mainframes, proprietary midrange systems are harder to justify when it comes to cost, and because customers have less of an applications investment here, it's easier to yank them out and replace them with vanilla "open systems" devices.
- There's plenty of money being made at the personal computing level, but it's finding its way into the pockets of fewer and fewer vendors, which are scrambling to load up super PC systems with thousands of dollars worth of memory and software to compensate for lower margins.

Open systems, once the pipe dream of cost-conscious information systems executives, are rapidly becoming a reality. Unfortunately, they're also becoming the justification for rampant, short-term cost-cutting in corporate America.

We've been here before. About four years ago, the computer industry went on the skids — and IS execs went on the dole — as corporate accountants came to the conclusion that a massive build-up in technology was not paying off. Thankfully, they soon realized that difficult as it was to justify technology on a cost-benefit basis, it was even more hazardous to allow domestic or foreign competitors to get a leg up on the information age.

Deja vu? Maybe. Barely a week goes by without some corporation moving to chop costs by downsizing, outsourcing or cleaning out the executive ranks of IS departments. While congressmen and economists debate a "soft landing," chief executive officers are clearing the decks as though a recession were already here.

This time around, we're missing the mysticism of computer technology. Top executives have been continually bombarded with technology stories in their daily journals and coffee-table magazines. They have read, as have we, of the mega-cheap millions of instructions per second now available from reduced instruction set computing-based systems.

Who can blame them for wondering why they can have a mainframe-on-a-desk for a few grand but still have to pay for legions of high priests catering to the demanding needs of back-room systems delivering the same horsepower for a cost factor thousands of times higher?

The industry is playing to these emotions, with vendors falling all over one another to bring out a cost-effective hot iron that undercuts the value of their former "solutions" packages. Who can blame them? Nobody can risk the loss of market share in the hopes of leveraging prior investments.

But if the vendors don't deliver on the full promise of open systems and distributed architectures, one of these days some corporate executives are going to realize that they've traded in a $700 dumb terminal to put a $20,000 package of hardware and software on the desk of a $19,000-a-year data-entry clerk. Costs cut from a centralized operation may well reappear in hundreds of departmental budgets.

That's defensible if software, systems integration and networking technology keep pace with raw horsepower. But in this industry, the hardware has always been and still is light-years ahead of applications technology.

If that doesn't change soon, corporate America may find that it has traded in one uncomfortable expense for another that is even harder to control. Should that day ever arrive, the open systems converts aren't going to be struggling; they're going to be buried.

Bartolik is *Computerworld's* news editor.

COMPUTER CAREERS

What's good for the boss . . .

A new breed of chief executive is shaping critical success factors for CIOs

BY HERBERT Z. HALBRECHT
SPECIAL TO CW

The first point I would like to make about chief information officers is that it is the *role* of the person that is important, not the title. Calling oneself a CIO does not mean a thing; legitimacy is bestowed by top management through the delegation of authority. As William Synnott wrote in his book *The Information Weapon,* "It is the senior management that provides the form and substance (and authority) of the new position, not the information manager."

In a nutshell, the CIO goes beyond the traditional information systems director's role of automating existing processes to achieve greater efficiency or effectiveness. Instead, he fosters transformation of the enterprise's operations and management. The CIO strives for qualitative changes in areas such as responsiveness to the marketplace, product development processes, product quality and distribution.

Like an enterprise, the CIO can be thought of in terms of critical success factors (CSF), a strategic planning concept applied to organizations by John Rockart of MIT's Sloan School of Management. The CSFs of a CIO reflect the CSFs of his organization. Thus, they can vary greatly from industry to industry, with differences in the role and importance of technology.

Often the CSFs are a function of the newer breed of chief executive officer, who are not only more adaptable than their predecessors, but are committed to change. They are willing to reexamine all assumptions, abandon overly rigid bureaucracies and leverage technological innovations. Such tendencies often lead the new CEO to decentralize IS, minimize the permanent staff, outsource noncritical work and buy and sell divisions as necessary.

These trends are putting pressure on CIOs today. They must be able to realistically evaluate what their enterprise is capable of doing. They must pursue economies of scale but realize what the company is not capable of handling and what would be better done by outside suppliers.

With the increasing globalization of business — particularly the globalization of networks and intellectual resources — the CIO's familiarity with outside suppliers should extend to offshore operators. The CIO should be familiar with pools of expertise in such places as the Caribbean, Singapore, India and the Philippines. He should feel comfortable with great distances and cultural differences.

With the work in question of such strategic value, an executive must be willing to go anywhere to take advantage of the best resources. On the other hand, he should also know when to look far afield because necessary work is routine or its output is of a commodity nature.

> WITH THE increasing globalization of business — particularly the globalization of networks and intellectual resources — the CIO's familiarity with outside suppliers should extend to offshore operators.

In any enterprise, one CSF for CIOs is to shift the IS organization's mind-set. It is necessary to move the organization from the attitude that it is going to solve users' problems alone to a willingness to feel users out about their problems and work in tandem with them to solve the problems. The CIO's role can be likened to that of a quarterback — handing off technologies to business partners.

Another CSF is the ability to relate to top management and gain the acceptance of senior executives. Acquiring this kind of credibility means that the chief executive knows what the CIO is doing, knows why he is doing it and supports the actions.

The CIO should meet regularly with users to lay out what the IS organization has promised and accomplished and to solicit the users' reactions. Two of the "critical failure factors" of a CIO are overselling — creating the wrong level of expectations — and not producing in accordance with an agreed-upon plan. CIOs should not trip over their own egos.

The CIO must be able to facilitate innovation throughout the enterprise, particularly if new technologies will bring about major changes in ways of doing business. Generally speaking, the less technologically oriented the organization, the greater the potential for embedded resistance to such changes. However, the attitude of top managers can resemble a religious conversion when they see evidence that competitors are doing important things with information technology.

Given the demand for interpersonal skills and other CSFs, many of today's CIOs are springing from general business units rather than IS organizations, and many more will do so in the future.

These line managers will replace incumbents that top management may view as more narrow, with an insular focus on technology and a lack of ability to relate to general managers.

The traditional IS manager tends to relish order and logic, focus on tough intellectual problems and value precision and discipline. He came up through a staff organization with a cost-center orientation. The line manager, with a profit-center orientation, tends to be more comfortable dealing with ambiguity and incomplete information and relies on intuition and inductive reasoning.

Companies do assume risks in appointing a general manager to the post of CIO. While the general manager may be comfortable weighing profit and loss and understanding the trade-offs among costs, benefits and risks, he or she could get blindsided by an inability to sufficiently grasp technology. The key requirement here is that the CIO must avoid being snowed when it comes to questions of technical proficiency.

Halbrecht is president of Halbrecht Associates, Inc., a Stamford, Conn. executive search firm specializing in IS.

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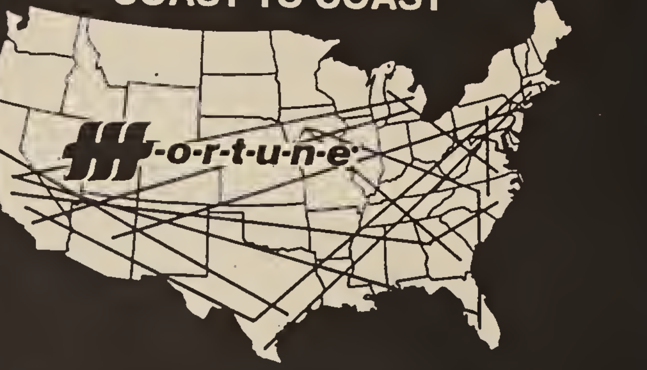

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(Contact Melinda Rowe, (408) 285-0115, Code: MRCW821)

OLTP

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We offer a competitive salary and comprehensive benefits package. If interested, send resume and salary history in confidence to:

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680 Andersen Dr
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TEMPORARY (9/1/89 - 8/31/90): Systems Programmers/Analysts (4 positions) to design, develop and implement major management information system; analyze existing problems and devise methods to solve user's needs; interface with both hardware and software; and make recommendations as to systems enhancements; must have 2 years exper., or 2 years as Programmer Analyst /or Consultant with proficiency in JCL and COBOL/CICS and have experience in Adabas/Natural on IBM mainframe; 40 hrs/wk, Mon-Fri 9 AM - 5 PM; $25,000/year; If interested, send resume to P. Lawrence; Pan American World Airways, Miami International Airport, 2152 NW 42nd Avenue, Building 3095, Miami, Florida 33122; must be U.S. Citizen or work authorized.

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Currently recruiting experienced computer pros with background in any of the following: IBM COBOL MAINFRAME APPLICATIONS; CICS; IDMS; IMS; ADS/O; ORACLE; DB 2; UNIX; SAS; VM/CMS; S/38 RPGIII or COBOL; AS400; DEC/VAX COBOL or FORTRAN; PICK O/S; Financial; Mfg.; Health Care; Banking; Insurance; MVS, VM, NCP/VTAM or CICS Systems Progrs; DEC/VAX Systems Mgrs; RACF; CPCS; Adabas Internals; PC LAN; Database Analysts; Office Automation. Partial listing of local, regional & nat'l fee paid positions. Call or write:

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(919) 782-3024

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(UP TO $50,000)

With at least 3 years experience in

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- NATURAL
- ADABASE
- PL1
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- ORACLE
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- RPGII/III
- VAX/VMS
- IDMS/ADS/O
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Louisville, KY
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- COBOL-CICS
- ORACLE-LAN-IBM/VAX
- DB2-CSP
- NOMAD-VM/CMS-EXEC
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(Texas & Michigan)

IDMS-ADSO

Call/Send Resume & References to:

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Houston, Texas 77092
(713) 686-9740
FAX (713) 686-9454

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- IBM ASSEMBLER
- CPCS
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Assistant MIS Director, Largo, Florida. $28,537 - $30,000 (D.O.Q.). A Challenging opportunity exists for a highly-motivated individual on Florida's Suncoast (Tampa Bay area). Requires Bachelor's degree in Computer Science, Business Administration or closely related field; three years progressively responsible experience in systems design, programming, and system manager functions preferably supplemented by two years supervisory experience. Mandatory experience utilizing Digital Equipment VAX Computer 11/785 Computer System, or equivalent hardware. Send resume specifying position to: Human Resources, City of Largo, P.O. Box 296, Largo, FL 34649-0296 by September 1, 1989. EOE, M/F/H/V-VP

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It's the IDG Communications Computer Careers Network, and it lets you run the most targeted and cost-efficient recruitment program possible.

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Reach qualified professionals cost efficiently. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network lets you buy the combination of newspapers that will deliver your recruitment message to qualified computer and communications professionals - and only those qualified professionals you need to reach.

To put the new Computer Careers Network to work for you - regionally or nationally - call the sales office nearest you, or contact **John Corrigan,** Classified Advertising Director, at 508-879-0700 ext 676.

One quick phone call can give you all the information you need to run your recruitment advertising in up to five leading industry newspapers.

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Mayo Clinic
Rochester, MN

Mayo Clinic's Section of Information Services, comprised of over 200 Applications and Systems Programmers, is seeking qualified professionals to join their team. These stimulating opportunities in one of the world's largest private medical complexes offer responsibilities in a multiple large IBM 3090 CPU environment.

Successful candidates should have a Bachelor's degree in computer science or related field or equivalent experience. Strong problem solving, interpersonal, and written communication skills are necessary.

Current openings exist in these specialties:

SYSTEMS

- Minimum of 2-3 years as a MVS Systems Programmer with experience in several of the following areas: MVS, VM, VSE, RACF, VTAM, NCP, NETVIEW, TSO, SMP/E, and related third party systems software products. Knowledge of Assembler required and COBOL experience preferred.

APPLICATIONS

- 1-4 years experience using COBOL, VSAM, and CICS, and experience in one of the following areas:
  - —McCormack and Dodge vendor package systems in MVS
  - —MSA vendor package in A/P, general ledger and inventory in DOS/VSE
  - —HBO patient accounting in MVS
- 1-5 years experience with MVS JCL; DB2, CSP, and COBOL a definite plus. IBM Assembler preferred but not required.

Mayo Clinic is located in Rochester, Minnesota, a dynamic community of 62,000 located 75 miles southeast of Minneapolis/St. Paul. The Mayo Medical Center, with a staff of over 14,000 employees, is a leader in health care, education, and research. In addition to a stimulating and exciting work environment, Mayo provides an attractive compensation package including an outstanding personal security and benefits program. Interview and relocation expenses are provided. Contacts will be kept in strict confidence. Interested and qualified candidates should send resume including salary requirements, available transcripts, and credentials to:

mayo

Mr. Mike Schryver
Personnel Section
MAYO CLINIC
200 First Street S.W.
Rochester, MN 55905

Mayo is an Equal Opportunity Employer

SENIOR ACP/TPF
SYSTEMS ENGINEER

Involves TPF design and analysis of software systems and operating systems using ACP/TPF, Basic Assembler Programming, and CMS Test Tool Development language. Will analyze, develop, implement and support software in the real time control programs internals area. Control program Internals include the software that controls the hardware, schedules resources and provides facilities to applications and system programmers working on the real time system. Will work on project to migrate real time system from ACP/TPF to IBM TPF2.4 by researching impact of new TPF2.4 system architecture on existing hardware and software and developing new facilities to allow programming staff to fully exploit the increased capacity of the new Architecture.

Applicant required to have Bachelors Degree in Computers, Math or Engineering with at least 4 years ACP/TPF Utilities Design and Control Program Internals experience. Education and experience will be found acceptable if applicant has a combination of professional development courses, training, and experience equivalent to a Bachelors Degree in Computers plus four years experience ACP/TPF Utilities Design and Control Program Internals.

Annual Salary will be $48,000/year for a 40-hour work week. Additional Salary up to $56,000/year may be paid if education and experience warrant.

Interested applicants contact the Oklahoma Employment Security Commission (7202), 3105 E. Skelly Drive, Tulsa, Oklahoma 74105-7202. Phone: (918) 749-6861. Refer to Job order number 091144. Ad paid by an Equal Opportunity Employer.

Systems Programmers & Programmer/ Analysts
Southeast

CICS Sys. Prog (Gens/Maint.)	$44K
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CICS Prog. Analyst (Mfg. Apps./COBOL)	$39K
MVS Sys. Prog (Prob. Solve/Gens)	$45K
MSA Prog Analyst (Fin. Apps./COBOL)	$38K
CICS Sys. Prog (Maint./Debug)	$45K
IDMS Prog. Analyst (Mfg. Apps./COBOL)	$38K
NCP/VTAM Sys. Prog (Gens/Tuning)	$45K
DB2 or IMS Prog. Analyst (SM&D/COBOL)	$38K

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The Data Group
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ADR/Datacom/Ideal

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Lead Programmer Analysts

Eight plus years' experience in conducting, documenting, feasibility and requirement studies essential. Thorough knowledge of ADR Ideal language and Datacom relational theory, as well as excellent oral and written communications skills required.

Senior Programmer Analysts

Five plus years' experience programming specifications of batch and on-line systems essential. Proven ADR/ Ideal/Datacom skills for development systems, and the ability to work with users in order to translate their needs into design specifications required.

Lead/Data Administrators

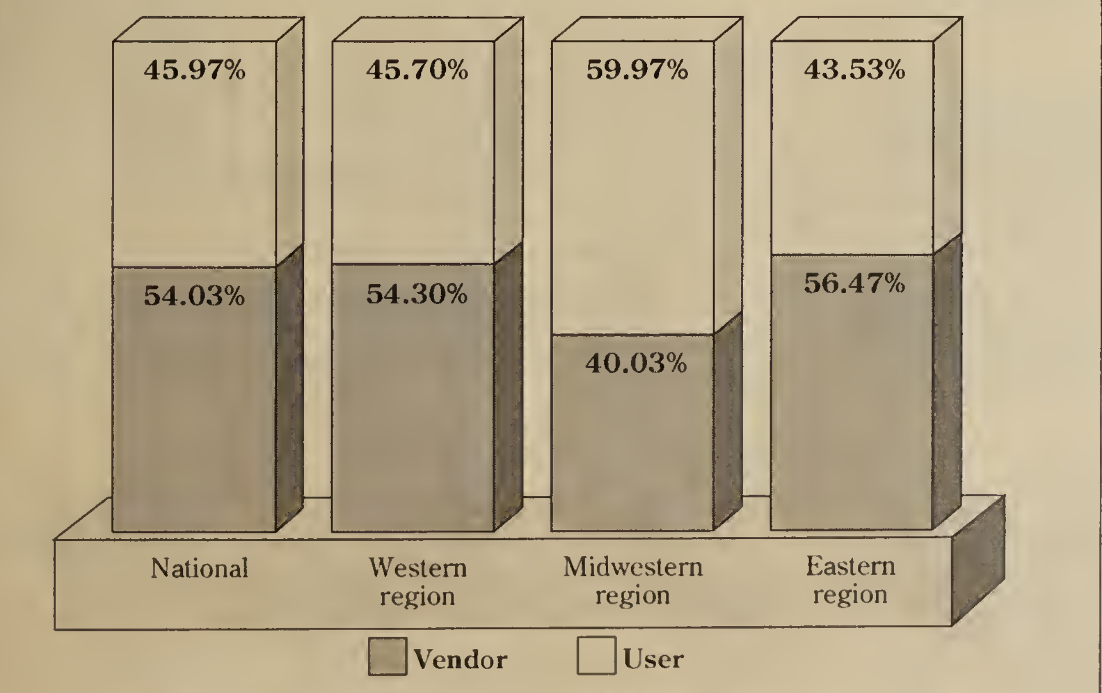
Eight plus years' analysis/design experience with emphasis on preparation of systems specifications from business requirements through functional design. You will be responsible for overseeing the development life cycle including the following: developing problem statements and user requirements; assisting in project estimates; developing systems solutions and written systems specifications; participating in the development/administrations of test plans; and providing guidance throughout the entire development life cycle. Knowledge of relational database concepts, as well as excellent oral and written interpersonal skills essential.

We offer highly competitive salaries, excellent benefits and a technical environment conducive to enhancing your skills. For immediate consideration, please send your resume with salary history, indicating position of interest, to: **Manager of Technical Recruiting, Automatic Data Processing, Inc., One ADP Blvd., Mail Stop 251, Roseland, NJ 07068.** Relocation assistance available. An equal opportunity employer.

CAREER INDEX

June 1989 computer recruitment advertising activity*

PERCENT OF SPACE PLACED BY VENDOR VS. USER COMPANIES



*Analysis of computer recruitment advertising space in *Computerworld* and selected major U.S. newspapers

SOURCE: CW PUBLISHING, INC.'S RECRUITMENT MARKET RESEARCH DATABASE

CW CHART: FRANK C. O'CONNELL

Sr. Quality Engineer for semi-conductor manufacturing operation. Responsibilities include: electrical test audits of digital and analog products, development and enhancement of quality plans to guarantee part performance to corporate requirements, introduction of statistical process controls, development and implementation of equipment and process characterization and acceptance plans, disposition of non-conforming material and initiation of a corrective action program. Requirements are a Bachelor's degree in Electrical Engineering with three (3) years component engineering experience in both digital and analog circuit design and analysis, development of electrical test hardware and software, VAX command language to perform data analysis, PC based hardware and software, non-conforming material disposition process, corrective action programs and analysis of electrical test failures. Working knowledge of equipment characterization techniques and knowledge of statistical process control methods and component test equipment. Familiarity with MIL STD 883C and M38510. Salary: $39,852.00 to $42,000 per year. If you are interested in and qualified for the above position, please forward your resume to: Massachusetts Division of Employment Training, Special Programs Department, Case #91180, 19 Staniford Street, Boston, MA. 02114.

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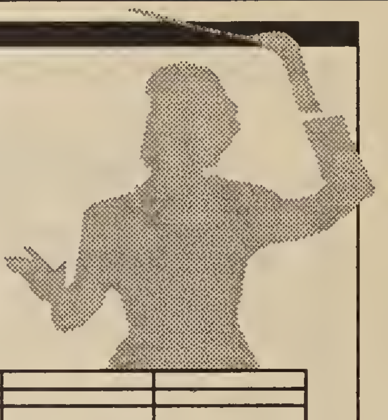

Renowned for our accomplishments in providing our customers with software performance management solutions, Boole & Babbage's brilliant performances address the on-going, complex needs of the IBM and IBM compatible mainframe environments. Even "Great Performances" can be enhanced. That's why we seek your expertise.

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We are looking for sales professionals with solid experience working with major accounts on a national basis, a proven track record of successful accomplishments and the demonstrated ability to handle large, multiple CPU data processing sites.

These assertive individuals must have extensive experience selling MVS, IMS, CICS or DB2 systems software in an IBM mainframe environment. Experience selling to Fortune 500 accounts is a must. Excellent verbal, written and presentation skills are also required. Some travel is necessary.

Qualified candidates may send a resume and salary history to: **Boole & Babbage, C. Danhof, Dept.CW, 510 Oakmead Parkway, Sunnyvale, CA 94086.** We are an Equal Opportunity Employer.

Boole & Babbage

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CW Systems Inc.

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(512) 469-0245

2925 Briarpark
Ste 830, CW/7-17
Houston, TX 77042
(713) 781-7466

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(214) 450-5815

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Mon-Thurs., 9am-12noon
1-800-877-4724
EOE/MFH

System Developers
1-800-231-5920

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Scientific Placement, Incorporated

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Lionel Software
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Principal Software Engineer to play a major rola in synthesis project. Develop state-of-the-art synthesis functionality, axtend capabilities of current synthasis tools, and maka significant contributions to project technical direction. Perform advanced research and development in applications such as synthesis of digital system designs, synthesis of behavioral leval designs, partitioning, and incremental synthesis. In addition to current sophisticated synthesis techniques, use LISP and knowledge-based programming techniques to solva complex digital aystams dasign problems encountered by high performance systems engineers. Implement large and complax software systems that meet high standards for quality and maintainability. Requirements for this position are: a Ph.D in Electrical and Computer Engineering with a strong resaarch concentration and demonstrated axpertise in synthesis of digital systems; damonstrated ability to implement large softwara systems; broad knowledge of computer-aided design; axpertise in knowledge-based systems and LISP. Salary: $51,189 to $54,000 per yaar. No axp. req. 40 hr/wk. 8:15am-5pm. If you ara interasted in, and qualified for the above position, please forward your rasume to: Massachusetts Department of Employment and Training, Case #91142, Charles F. Hurley Building, Boston, Massachusatts 02114

Systems Analyst to train 15 employees & other corp. staff in computer usage & systems operation; program business system software; review & computeriza point of sale system; do inventory, acctg & axpense control systems; analyze business & management problems; & supervise, upgrade & schedule employees. Must be skilled in IBM compatible hardware & have good interpersonal communication skills. Must have B.Sc. in business administration or equiv. & M.Sc. in information systems or computer sci. or equiv. graduate level academic training. 40 hrs/wk, 9am-6pm, $23,811/yr. Evidence of authorization to work in U.S. is req'd. Send resume to N.M. Dept. of Labor, PO Box 1908, CC 1010, Santa Fe, NM 87501. Job order #276194.

Systems Analyst/Consultant - devalop & customiza item & document processing systems on UNISYS V & A series computers. Work with Financial Systems Architecture & Global Financial systems; undertaka compiler construction & data communication interfaces; use XE 520, UNIX, COBOL, C. B.S./Electrical Engineering or Computer Science. 2yrs/axp. doing abv. or 2yrs/axp. as Systems Analyst/Engineer using combination of abv. 40hr/wk. (9am-6pm) $36,000/yr. Apply in person or send resume to: Georgia Dept. of Labor, 2972 South Cobb Driva, Smyrna, GA 30080 or nearest Georgia Job Service Center. Control #GA 5375019

PROGRAMMER/ANALYST (Five Positions Available). Partake in development, maintenance and enhancement of financial systems on Honeywell Bull DPS/90 mainframe under OS/GCOS 8 with DMIV/TP database. Require 2 years experience with Honeywell Bull, JCL, DMIV/TP and structured methodology. Salary: $29,000 per annum. Hours: 40 per week. Job Location: Nashville, TN. Resume to: Job Service, Program and Technical Support, Tennessee Department of Employment Security, Nashville, TN 37245-1200, Attention: Kathy Malo.

Every week Computerworld delivers more qualified job candidates than any other newspaper.

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National Computer Associates

ATLANTA: DataPro Personnel Consultants
400 Perimeter Center Terrace, Suite 650
Atlanta, GA 30346 (404) 392-4242
BALTIMORE: CIPS Inc.
101 W Ridgely Road, Suite 7A & 8A
Lutherville, MD 21093 (301) 252-9000
BOSTON: Robert Kleven & Co., Inc
P.O. Box 636
Lexington, MA 02173 (617) 861-1020
CHICAGO: Thomas Hirtz & Associates
150 North Wacker Drive, Suite 1700
Chicago, IL 60606 (312) 977-1555
CINCINNATI: Task Group
7875 Reading Road
Cincinnati, OH 45237 (513) 821-8275
CLEVELAND: Innovative Resources, Inc
Statler Office Tower, Suite 426
East 12th & Euclid
Cleveland, OH 44115 (216) 621-4220
COLUMBUS: Michael Thomas, Inc.
450 W Wilson Bridge Road, Suite 340
Worthington, OH 43085 (614) 846-0926
DALLAS: DataPro Personnel Consultants, Inc.
13355 Noel Road, Suite 2001
Dallas, TX 75240 (214) 661-8600
DENVER: Abacus Consultants, Inc
1777 South Harrison Street, Suite 404
Denver, CO 80210 (303) 759-5064
DETROIT: Electronic Systems Personnel
3000 Town Center, Suite 2580
Southfield, MI 48075 (313) 353-5580
GREENSBORO: DataMasters
P.O. Box 14548
Greensboro, NC 27415-4548
(919) 373-1461
HARTFORD: Compass Incorporated
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MARKETPLACE

Choose a consultant carefully

By hiring the right expert, a manager can turn partnership into profit

BY JOHN RODRIGUES
SPECIAL TO CW

Hiring a consultant means more than buying expertise. Managers who forge an effective partnership with their expert-for-hire can reap a greater return.

With the successful pairing of manager and consultant, the manager gets credit for the consultant's success, and the consultant can see his skills recognized. The company also gets a team on which it can rely — a particularly valuable asset when a consultant plays a role in customer support.

As in the recruitment of a permanent employee, a manager hiring a consultant must gauge the individual's expertise, experience and reliability. He should look for these traits:

- Strength in communicating technical ideas effectively.
- Mental agility in comparing various approaches to a problem.
- The ability to work independently, including a willingness to correct mistakes.
- The ability and willingness to quickly identify when the client's input is needed.
- An understanding of the company's goals for a project, such as speed or control of costs.

The manager also should be prepared to coordinate his company's needs with the consultant's capabilities. Situations differ, but the manager can develop a systematic approach that covers the basics and can be fine-tuned as needed. The elements of this approach fall into three major categories: internals, controls and communications.

Internals. The internals are requirements and resources that the hiring company brings to the table when dealing with the consultant. These include technical objectives, budgets, timetables, management, staffing, equipment and purchases. Particularly in a large organization, it is helpful if an individual managing the consultant has a reasonable degree of control over this range of interests. This makes it easier to handle information flow and decision making with the consultant.

The manager should be able to authorize any contract negotiations, coordinate meetings between the internal staff and the consultant and serve as the conduit for proposals, reports or presentations. Ideally, he should also have the last word on decisions affecting the consultant's work.

Controls. Development projects require measures to keep them from going out of control, such as work orders that have well-defined responsibilities, timetables and budgets. When it comes to identifying and resolving deviations from the desired outcome, such a plan makes it easier to spot problems sooner. The preparation of project milestones also makes it easier for the consultant to identify priorities when trade-offs become apparent.

Managers in companies that do not employ this approach should implement some sort of formal mechanism for measuring the progress of consultants. Examples include standard project-scheduling techniques, such as the Program Evaluation and Review Technique, or PERT, and the Critical Path Method.

Either the manager or consultant should draft the project plan. However, both parties should review the plan to gauge its feasibility.

> A KEY ASPECT of communication is feedback. The manager should insist that a consultant inform him when any major decision points are reached so he can ensure that the consultant stays on course.

Consultants vary in their ability to estimate how long it will take them to do something, particularly with design work, where it may be hard to predict the time required to solve a new problem. The manager should be mindful of the time required for research, planning and review.

Communications. There may be disagreements between the manager and the consultant; these should be brought out into the open. They are often the result of different assumptions on each person's part, and if assumptions can be agreed on, subsequent decisions should make sense to both parties.

A key aspect of communication is feedback. The manager should insist that a consultant inform him when any major decision points are reached so he can ensure that the consultant stays on course.

Before making the decision to enter into a contract, managers and consultants must agree on specific terms for fee structures, nondisclosure agreements and payment dates.

Prospective consultants can be located through consulting firms that employ them or placement agencies and trade associations that provide referrals for independent contractors.

Congressional approval of Section 1706 of the Tax Reform Act of 1986 has generated a great deal of confusion over the income tax status of independent consultants who contract with clients as individuals. One source of up-to-date information on the issue is the 50-page *Tax and Business Handbook for Consultants and Clients*, published by the Independent Computer Consultants Association. The booklet is available for $24.95 from the association, which can be reached at 933 Gardenview Office Pkwy., St. Louis, Mo. 63141.

Rodrigues is owner of CADsmith, Inc. in Marlboro, Mass., and was previously vice-president of software engineering at Management Systems Research, Inc. in Natick, Mass.

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XT Model 089	$975	$1,400	$950
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AT Model 239	$1,800	$2,100	$1,700
AT Model 339	$1,800	$2,000	$1,700
PS/2 Model 50	$1,675	$2,000	$1,600
PS/2 Model 60	$3,000	$3,300	$2,500
Compaq Portable I	$475	$750	$325
Portable II	$1,700	$2,100	$1,700
Portable III	$2,875	$2,950	$2,200
Portable 286	$1,650	$2,000	$1,650
Plus	$900	$1,200	$900
Deskpro 286	$1,950	$2,350	$1,700
Deskpro 386	$2,750	$2,900	$2,500
Apple Macintosh 512	$450	$650	$300
512E	$600	$925	$600
Plus	$1,000	$1,150	$750
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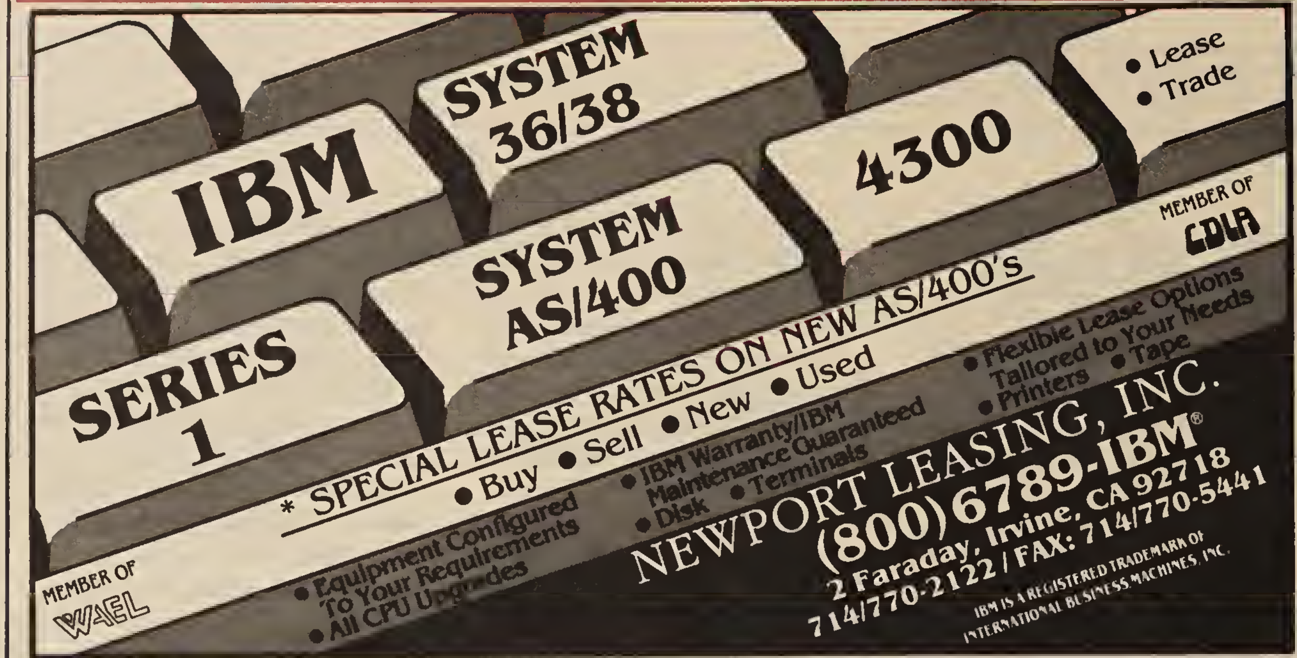

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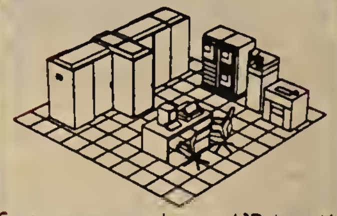

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Preparing IS execs for CASE

Top managers must learn to understand it, get behind it and support it

BY MARK DUNCAN
SPECIAL TO CW

It is safe to say that without effective management participation, the implementation of computer-aided software engineering (CASE) will never happen. Without management intervention, there will be a high potential for early failure.

Management participation consists of the following elements:

- Understanding the potential benefits of CASE.
- Committing to CASE as a strategy.
- Sustaining that support once it is implemented.

Imparting an understanding of the potential benefits of CASE involves convincing management that developing and maintaining systems traditionally is not viable. Firms can not tolerate long life cycles, manual design and coding, a lack of uniformity and standardization and minimal user participation.

Several factors are driving demand for an alternative development style: the ubiquitous applications backlog, a more demanding and computer-savvy user community, shorter delivery times aimed at gaining competitive advantage and a more diverse portfolio of critical applications.

Financial mix

Commitment to CASE as a strategy, the second element of management participation, has one simple ingredient: money. The trainer is obliged to inform management that CASE is expensive. Money has to be spent, not only on development tools but possibly on methodologies.

A mature IS shop might have a development methodology in place that is modern and comfortable for the staff. For this shop, all that is needed is to select the CASE tools that best automate the methodology. However, those IS departments that have neglected to adopt a stable methodology face the additional cost of buying one, hiring consultants to customize one or developing one in-house.

Financing the methodology and tools is only part of the commitment to CASE. Management must be prepared to fund adequate training for the applications development staff as well. Nothing will doom CASE to failure more than a lack of skills in the new tools and techniques.

Commitment also stretches to embrace organizational-changes necessitated by CASE. If there is one word that most characterizes CASE, it is discipline — the discipline of methodology, tools and functional IS units operating in concert.

In addition to the applications development organization, implementation of CASE requires the participation of the development center and such groups as data administration and quality assurance. The development center carries the responsibility for tool research and implementation. It is a support group for applications development, providing training in new tools and techniques as well as consulting on systems development.

Data administration has acquired more legitimacy with the advent of CASE, which relies on control of the entire data resource, from departments to the corporate level. Data administration is responsible for defining, developing and maintaining a comprehensive organizational business model, the data architecture and the data inventory. Having a single-source data reference dictionary enables IS management to elevate its automation strategy from isolated, department-level functions to integrated, corporatewide ones.

QA on patrol

Quality assurance — invariably mistaken for its sister function, quality control — is the watchdog of the process. It scrutinizes the systems development process to ensure that it is the best it can be and that it is based firmly on preventing errors rather than correcting them.

The final element of management participation in CASE implementation — sustained support — is as critical to success as understanding and commitment. A lot of rhetoric about immediate and massive productivity gains has accompanied the emergence of CASE, and pioneering organizations have demonstrated dramatic improvements in system development.

But they are also finding that it takes time, money and a good deal of perseverance and patience to reach a state in which all new systems will be developed through CASE by functional IS groups operating together. Furthermore, indications are that the return on investment will increase due to the quality of software rather than productivity improvements.

In the wave of change that is being triggered by CASE, it is natural for the technical issues to surface most quickly and to dominate sales pitches of software vendors and thoughts of IS management. This view tends to focus attention on questions such as which tool does what, how and at what cost.

Experience is demonstrating, however, that these are not the first questions that should be asked, nor are they the most important ones. Probably the most critical success factor governing the implementation of CASE is readiness — a combination of technical, cultural and organizational factors.

The impact of change accompanying the implementation of CASE is not confined to the technical programming staff; management will undoubtedly be affected and must be an essential part of the preparations.

Duncan is a quality assurance consultant at a large Dallas bank.

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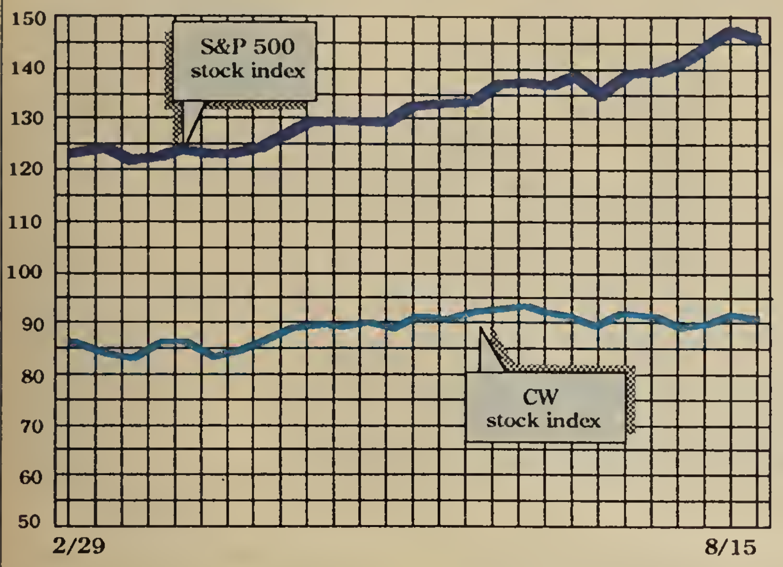

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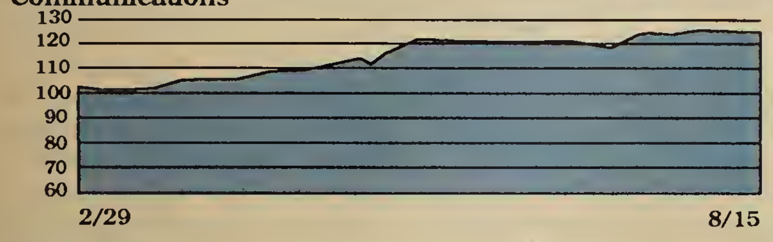

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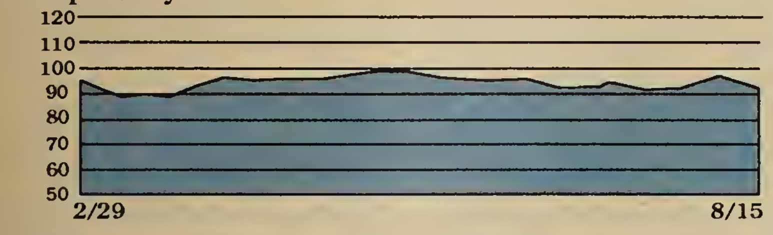

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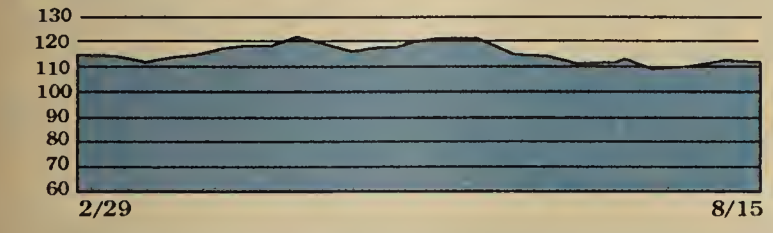

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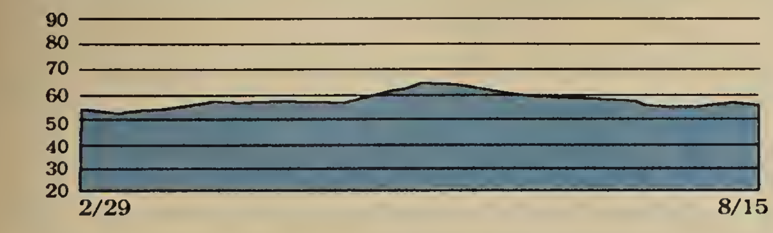
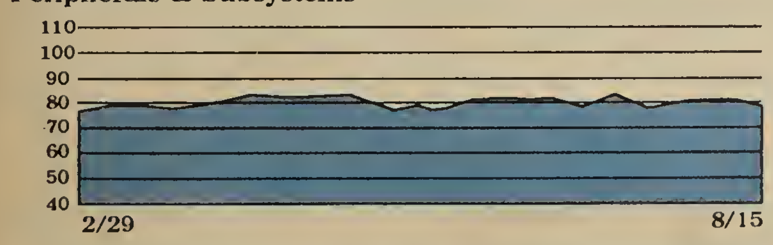
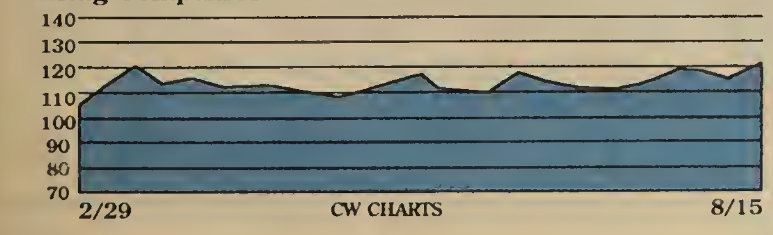


Peripherals & Subsystems



Leasing Companies



CW CHARTS

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, AUG. 16, 1989

Communications and Network Services

EXCH		PRICE				
		52-WEEK RANGE		CLOSE AUG. 16, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
N	AMERICAN INFO TECHS CORP	63	44	60.125	0.9	1.5
Q	ANOREW CORP	26	16	23.5	0.3	1.1
Q	ARTEL COMM CORP	8	2	7.125	0.3	3.6
N	AT&T	41	24	39.125	-1.0	-2.5
Q	AVANTEK INC	7	4	6	0.1	2.1
N	AYOIN CORP	19	13	17.5	0.1	0.7
N	BELL ATLANTIC CORP	100	68	96.375	-0.6	-0.6
N	BELLSOUTH CORP	54	39	51.125	-0.9	-1.7
Q	COMPRESSION LABS INC	10	3	9.625	1.0	11.6
Q	COMPUTER NETWORK TECH	3	1	2.719	0.0	-1.2
Q	CONTEL CORP	66	35	62.875	1.1	1.8
Q	OATA SWITCH CORP	7	4	4	0.1	3.2
Q	OIGITAL COMM ASSOC	31	17	23	2.1	10.2
Q	OYNATECH CORP	22	17	18.5	-0.3	-1.3
Q	FIBRONICS INTERNATIONAL INC	7	3	6.25	0.5	8.7
Q	GANDALF TECHNOLOGIES	7	4	6.25	-0.4	-5.7
N	GENERAL DATACOMM INOS	6	3	5.625	0.3	4.7
N	GTE CORP	61	40	57.875	-1.6	-2.7
Q	INFOTRON SYS CORP	13	10	9.75	-0.3	-2.5
N	ITT CORP	64	46	62.25	0.9	1.4
N	M A COM INC	10	7	7.25	-0.1	-1.7
Q	MCI COMMUNICATIONS CORP	42	16	37.625	0.6	1.7
N	NETWORK EQUIPMENT TECH INC	25	14	23.875	-1.0	-4.0
Q	NETWORK SYS CORP	12	8	9.125	0.0	0.0
N	NORTHERN TELECOM LTO	21	14	20.375	0.1	0.6
Q	NOVELL INC	38	24	25	-3.9	-13.4
N	NYNEX CORP	84	63	79	-0.6	-0.8
N	PACIFIC TELESIS GROUP	45	28	43.25	0.1	0.3
A	PENRIL CORP	6	3	6	0.0	0.0
N	PLESSEY PLC	46	25	43.5	-1.0	-2.2
N	SCIENTIFIC ATLANTA INC	21	10	19.5	-0.4	-1.9
N	SOUTHWESTERN 8ELL CORP	58	36	55	-1.1	-2.0
Q	3 COM CORP	29	12	11.875	-2.1	-15.2
N	U S WEST INC	74	53	71.625	-0.4	-0.5

Computer Systems

Q	ALLIANT COMPUTER SYS	6	3	5	0.0	0.0
Q	ALPHA MICROSYSTEMS	8	5	6.75	-0.6	-8.5
Q	ALTOS COMPUTER SYS	9	6	6.125	-0.1	-2.0
A	AMOAHL CORP	23	14	14.75	-0.3	-1.7
Q	APPLE COMPUTER INC	50	34	40.375	-3.6	-8.2
N	BOLT BERANEK & NEWMAN	17	7	8.625	0.4	4.5
N	COMPAQ COMPUTER CORP	102	50	92	-5.3	-5.4
N	COMMODORE INTERNATIONAL	20	9	11.125	0.6	6.0
Q	COMPUTER AUTOMATION INC	7	3	3.25	0.4	13.0
N	CONTROL DATA CORP	24	16	19.5	-0.4	-1.9
Q	CONVEX COMPUTER CORP	15	7	13.125	-1.1	-7.9
N	CRAY RESH INC	81	41	44.5	-0.8	-1.7
Q	OAISY SYS CORP	9	3	3.875	-0.3	-6.1
N	OATA GEN CORP	21	14	15.75	-1.0	-6.0
N	OATAPOINT CORP	6	3	5	-0.1	-2.4
Q	OELL COMPUTER CORP	13	6	7.125	-0.3	-3.4
N	OIGITAL EQUIP CORP	122	86	101.25	-0.8	-0.7
N	FLOATING POINT SYS INC	4	2	2.375	-0.1	-5.0
N	HARRIS CORP	35	25	34	-0.1	-0.4
N	HEWLETT PACKARO CO	62	44	52.5	-4.0	-7.1
N	HONEYWELL INC	92	57	88.375	-2.5	-2.8
N	IBM	131	106	115.5	-1.6	-1.4
Q	INFORMATION INTL INC	16	13	15.25	-0.4	-2.4
Q	IPL SYS INC	9	2	7.375	-0.5	-6.3
N	MAI 8ASIC FOUR INC	20	5	4.75	-0.9	-15.6
N	MATSUSHITA ELEC INOL LTO	205	158	178	7.0	4.1
Q	MENTOR GRAPHICS CORP (S)	22	12	16	-20.4	-56.0
N	N8I INC	4	1	2	-0.1	-5.9
N	NCR CORP	65	51	62	-1.8	-2.7
N	PRIME COMPUTER INC	21	12	18.125	0.3	1.4
Q	PYRAMIO TECHNOLOGY	20	9	13	-0.8	-5.5
Q	SEQUENT COMPUTER SYS INC	31	14	28.125	-0.4	-1.3
Q	SHARE8ASE CORP	4	2	2.125	-0.2	-8.1
Q	SILICON GRAPHICS CORP	21	14	20.5	0.5	2.5
Q	STRATUS COMPUTER	35	21	29.5	-1.8	-5.6
Q	SUN MICROSYSTEM INC	23	13	13.75	-1.4	-9.1
Q	SYM8OLICS INC	3	1	1.5	-0.3	-17.3
N	TANOEM COMPUTERS INC	24	12	23.25	-0.1	-0.5
N	TANOY CORP	49	38	45.75	-1.6	-3.4
N	ULTIMATE CORP	13	7	10	0.4	3.9
N	UNISYS CORP	33	20	21.75	0.0	0.0
A	WANG LABS INC	11	5	6	-1.3	-17.2

Software & DP Services

Q	AOVANCEO COMP TECH	4	1	1.25	0.2	17.6
Q	AMERICAN MGMT SYS INC	19	11	12.5	-0.1	-1.0
Q	AMERICAN SOFTWARE INC	18	9	17	-0.1	-0.7
N	ANACOMP INC	10	5	5.75	-0.6	-9.8
Q	ANALYSTS INTL CORP	19	7	18.5	-3.5	-15.9
Q	ASHTON TATE	28	13	13	-1.0	-7.1
Q	ASK COMPUTER SYS INC	18	11	11.625	-0.9	-7.0
N	AUTO OATA PROCESSING	44	35	42.75	0.1	0.3
Q	AUTOOESK INC	41	23	38.25	-2.0	-5.0
Q	8MC SOFTWARE INC	24	8	22.25	-0.4	-1.7
Q	8OOLE & 8ABBAGE INC	20	9	13.5	-0.3	-1.8
N	BUSINESSLANO INC	15	10	11.875	-0.5	-4.0
Q	COGNOS INC	9	5	5.875	-0.1	-2.1
N	COMPUTER ASSOC INTL INC	22	12	15.5	-3.9	-20.0
Q	COMPUTER HORIZONS CORP	10	7	7.75	0.5	6.9
N	COMPUTER SCIENCES CORP	56	44	51.75	-0.9	-1.7
N	COMPUTER TASK GROUP INC	17	11	12.5	-0.3	-2.0
Q	COMSHARE INC	35	18	32.125	-0.1	-0.4
Q	CORPORATE SOFTWARE	16	9	13.75	0.0	0.0
N	CULLINET SOFTWARE INC	10	4	7.625	-1.8	-18.7
N	GENERAL MTRS (CLS E)	55	39	53.125	-1.0	-1.8
Q	HOGAN SYS INC	7	4	5.75	0.0	0.0
Q	INFORMIX CORP	12	7	8.375	-0.1	-1.5
Q	INTELLICORP INC	5	2	4	-0.1	-3.0
Q	KEANE INC	19	7	15.5	-0.5	-3.1
Q	LEGENT CORP	31	16	28.25	-1.3	-4.2
Q	LOTUS DEV CORP	28	15	25.375	-2.4	-8.6
Q	MANAGEMENT SCI AMER	12	6	10.875	-0.4	-3.3
Q	MICROSOFT CORP	65	45	55.875	-2.9	-4.9
Q	NATIONAL DATA CORP	35	19	33.875	-0.1	-0.4
N	ON LINE SOFTWARE INTL INC	7	4	6.5	0.1	2.0
Q	ORACLE SYS CORP	18	7	17.125	-0.8	-4.2
N	PANSOPHIC SYS INC	18	12	15.625	1.9	13.6
Q	PHOENIX TECHNOLOGIES INC	19	4	5.125	0.3	5.1
Q	POLICY MGMT SYS CORP	35	21	33.75	0.4	1.1
Q	PROGRAMMING & SYS INC	20	13	18.5	0.5	2.8
Q	RA88IT SOFTWARE INC	3	1	0.938	0.0	0.0
Q	RELATIONAL TECH INC	17	8	8.75	-0.3	-2.8
N	REYNOLDS & REYNOLDS CO	34	18	25.625	-0.4	-1.4
Q	SEI CORP	20	16	18.25	-0.3	-1.4
Q	SHAREO MEO SYS CORP	20	14	15.75	-0.1	-0.8
Q	SAGE SOFTWARE INC	10	6	6.75	-0.4	-5.3
Q	SOFTWARE PUBG CORP	29	16	21.5	-2.8	-11.3
A	STERLING SOFTWARE INC	8	5	8	0.4	4.9
Q	SUNGARO DATA SYS INC	20	13	19	1.5	8.6
Q	SYSTEMATICS INC	37	26	35.25	-0.3	-0.7
N	SYSTEM CENTER INC	26	13	24	-0.1	-0.5
N	SYS. SOFT INC	27	12	26.25	1.8	7.1
Q	WORDSTAR	3	2	2	0.2	10.3

Semiconductors

N	AOV MICRO OEVICES INC	12	7	8.5	-0.1	-1.4
N	ANALOG OEVICES INC	13	10	10.375	-0.3	-2.4
Q	ANALOGIC CORP	11	7	9.75	-0.1	-1.3
Q	CHIPS & TECHNOLOGIES INC	26	11	23.125	-1.6	-6.6
Q	INTEL CORP	34	19	28.875	-2.6	-8.3
Q	LSI LOGIC CORP	12	8	8.875	0.0	0.0
Q	MICRON TECHNOLOGY INC	26	13	14.375	-0.1	-0.9
N	MOTOROLA INC	62	36	57.125	-2.6	-4.4
N	NATL SEMICONOUCTOR	11	7	7.375	0.5	7.3
N	TEXAS INSTRS INC	47	35	38.375	-2.3	-5.5
A	WESTERN OIGITAL CORP	15	8	10.125	0.9	9.5

Peripherals

Q	ALLOY COMP	4	1	2	-0.1	-5.9
N	AM INTL INC	6	5	5.5	0.4	7.3
Q	AST RESH INC	13	7	8.125	-0.5	-5.8
Q	AUTO TROL TECH CORP	6	4	4.5	0.0	0.0
Q	BANCTEC INC	16	8	16	0.8	4.9
Q	CIPHER DATA PROOS INC	11	7	8	0.3	3.2
A	COGNITRONICS CORP	7	2	6.125	0.1	2.1
Q	CONNOR PERIPHERALS	15	7	11.375	-1.4	-10.8
A	OATAPROOUCTS CORP	18	10	13.375	-0.3	-1.8
A	DATARAM CORP	12	7	11.125	0.0	0.0
N	EASTMAN KOOAK CO	52	42	49.875	-0.8	-1.5
N	E M C CORP MASS	6	3	5	-0.3	-4.8
Q	EMULEX CORP	12	8	8	-0.1	-1.5
Q	EVANS & SUTHERLANO	25	13	24.25	1.3	5.4
Q	ICOT CORP	4	1	1.375	-0.3	-15.4
Q	INTERLEAF INC	11	6	7.625	-0.4	-4.7
Q	IOMEGA CORP	5	2	2.688	-0.1	-4.4
Q	LEE DATA CORP	4	2	2.5	0.0	0.0
Q	MASSTOR SYS CORP	4	2	3.125	0.0	0.0
Q	MAXTOR CORP	11	6	9.625	0.4	4.1
Q	MICROPOLIS CORP	12	3	3.625	-0.6	-14.7
Q	MINISCRIBE CORP	11	1	2.25	-0.3	-12.2
N	MINNESOTA MNG & MFG CO	80	35	79.75	1.4	1.8
Q	PERSONAL COMP PROD INC	6	4	4.5	0.0	0.0
Q	PRIAM CORP	2	0	0.375	-0.1	-14.4
Q	PRINTRONIX INC	11	7	8.625	0.0	0.0
N	QMS INC	11	6	10.25	0.3	2.5
Q	QUANTUM CORP (S)	14	4	13.25	-13.5	-50.5
N	RECOGNITION EQUIP INC	13	6	8.625	-0.1	-1.4
Q	REXON INC	8	6	7.25	0.0	0.0
Q	SEAGATE TECHNOLOGY	16	7	11	-1.5	-12.0
N	STORAGE TECH CORP	24	11	12.125	-0.4	-3.0
Q	TANDON CORP	2	0	0.563	0.0	0.0
N	TEKTRONIX INC	24	19	21.875	-0.8	-3.3
Q	TELEVIOEO SYS INC	1	0	0.281	0.0	0.0
N	XEROX CORP	69	52	67.125	-0.8	-1.1

Leasing Companies

Q	AMPLICON INC	115	11	13	-0.4	-2.8
N	CAPITAL ASSOC INTNL INC	9	5	7	-0.1	-1.8
N	COMDISCO INC	30	19	29.5	-0.5	-1.7
Q	CONTINENTAL INFO SYS	5	0	0.563	0.1	12.6
Q	LDI CORPORATION	17	13	16	0.8	4.9
Q	PHOENIX AMERN INC	5	3	4.25	0.0	0.0
Q	SELECTERM INC	9	5	8.375	0.4	4.7

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL; S = SPLIT

No relief

Technology shares wilt as summer doldrums hit hard

Whether its earnings dip was caused by slow sales, a strong dollar abroad or last week's lunar eclipse, the result was the same: Computer Associates International, Inc. slid 1 point to close Thursday at 16.

Hewlett-Packard Co. announced plans to control costs and hiring levels in an attempt to reduce expenses; these measures were taken after the firm said its recent reduction in earnings were partly the result of errors made in predicting demand for its products. HP fell 4¼ points to finish at 51.

The week brought no rest to Wang Laboratories, Inc. After expecting to hear that the troubled firm would restructure its debt payment schedule, analysts were surprised when Wang rejected the repayment plan approved by its banks. Wang shares finished at 5⅝, off 1 point. Compaq Computer Corp. fell 3¾ points to close at 90.

Ashton-Tate Corp.'s high inventory levels were not matched by customer demand, leading that firm to predict a substantial third-quarter loss. If customers were slow to react, though, so were investors: Ashton-Tate dipped only ⅜ of a point to close at 13½. IBM finished at 114¾, off ¾ of a point, and Digital Equipment Corp. edged down ⅝ of a point to 100.

One of the week's few winners was Tandem Computers, Inc., which added 2 points to close at 23½.

JOSEPH J. FATTON

Weapons

FROM PAGE 1

"When the computer goes down on the B-1 [bomber], you can't tell what's wrong with it. And if the computer on the B-2 goes down, you don't crank engines, you don't taxi, you don't fly. I'm not sure that's too smart," Dilda said.

While West Pointers are not yet strutting to a voice-synthesizing computer, most observers agree that computer-based technology will be as important to the soldier of the 1990s as a bayonet was to the Marine of 1942. Computer technology already plays a crucial role in weapons ranging from M-1 tanks to Navy diving suits. And the Stealth bomber, at more than $500 million per plane, will be one of the most sophisticated computer-based weapons ever produced.

Critics say many of these budget-draining armaments are simply not living up to their hype. "Much of the technology is inherently unreliable because it hasn't gone through extensive testing, it's often difficult to repair, and when it breaks, it tends to have rather catastrophic effects," said Gary Chapman, executive director at the Palo Alto, Calif.-based Computer Professionals for Social Responsibility.

THE TROUBLE IS, the military culture may already be too infatuated with leading-edge devices to ever turn back. While the human mind has never been at a loss for improvements in the way people kill one another, the Pentagon's commitment to computer technologies is too deep-seated to be changed easily.

Reports ranging from a B-1 bomber crashing when it hit a pelican to the embarrassing Divad project — a computer-operated anti-aircraft gun that once identified a rotating latrine fan as the closest threatening target — have initiated brass-filled investigative hearings. Additionally, Air Force Col. John Boyd has repeatedly challenged the "gold plating" of weapons with excessively costly gadgetry that constantly breaks down.

The trouble is, the military culture may already be too infatuated with leading-edge devices to ever turn back. While the human mind has never been at a loss for improvements in the way people kill one another — machine guns, nerve gas, napalm and nuclear weapons all stand as testaments to thinking as inventive as it is diabolic — the Pentagon's commitment to computer technologies is too deep-seated to be changed easily.

During World War II, analog computers helped anti-aircraft guns track high-speed bombers and V-1 rockets aimed at the UK. In Vietnam, computers became essential to the U.S. military's method of waging war by feeding endless streams of data from intelligence reports into huge banks of computers in Saigon and Nha Trang.

Those trends do not appear to be diminishing. For most of this decade, the armed forces benefited from the greatest peacetime buildup in the history of the U.S. At its peak, the money spent for military research hit $40 billion annually, or nearly 65% of all federal money targeted for research and development.

Much of that cash has gone for high-tech weapons. The Center for Defense Information in Washington, D.C., reports that the Pentagon's electronics procurements have more than tripled since the beginning of the decade and now account for more than 40% of the military's production costs.

Soldiers said that when the computer-based systems are up and working properly, they are a welcome addition. Vin Collins, a 10-year veteran of the Army Reserve who serves as a tank commander at Fort Devens in Massachusetts, said the M60 tank's computer-assisted fire control unit is one of the machine's best features.

"Automotively, the tank is a dog," Collins said. "But the firing unit is practically idiotproof, and it makes our job a heck of a lot easier."

Collins noted, however, that problems sometimes occur when less-experienced soldiers take the word of on-board computers as gospel, sometimes even relying on computer-generated trajectory and firing-distance information that is clearly contradictory to what the soldier can see from the tank's viewing ports.

Sophisticated technologies have also been assigned the job of safeguarding weapons. Stunned by incidents such as finding Stinger anti-aircraft missiles in Iranian hands, the Department of Defense is reportedly investigating a method that would require a personal identification number to fire the missile, thus preventing its use if it were stolen or fell into enemy hands. In addition to making the weapon inoperable, a satellite could also track a code transmitted from an installed chip and disable the unit.

The Department of Defense has also integrated computer-based strategic planning into the grander defensive picture, but they have often met bitter resistance on that front. Last year, the Congressional Office of Technology Assessment said the large fault-tolerant battle management software package needed for the proposed Strategic Defense Initiative was so complex that the chances of it experiencing a "catastrophic failure" during its first real war test were great [CW, June 13, 1988].

The agency countered such distrust with a more decentralized strategy called "brilliant pebbles," in which most of the computer processing would occur on-board thousands of space satellites about the size and shape of an overweight first-grader: three feet tall and 100 pounds.

The weakest link

However, some critics say the military is overlooking one important point. "The weapons might be the most advanced thing going, but the designers forget the weakest link in the chain — the human operator," said Steve Kosiak, an analyst at the Center for Defense Information. "To the Pentagon, high technology often translates into complicated technology."

Some Army officers claim it can take a soldier 20 hours per week just to stay familiar with the scores of instructions needed to point computer-guided artillery pieces.

Similarly, weapons specialists claim it takes more than two years to learn how to operate RCA Corp.'s Aegis system. The complex Aegis, a network of radar antennas, computers and missile-firing devices designed to protect large ships, blasted an Iranian airbus out of the sky in July 1988 [CW, July 11, 1988] after the crew mistakenly identified the 117-foot civilian jet as a 62-foot F-14 jet fighter employed by the Iranian air force.

Although the crew of the *USS Vincennes* reportedly claimed that the Aegis tracking component showed the plane descending in its direction — in contradiction to other sightings that showed it climbing — the Pentagon subsequently blamed the disaster on human operator error.

Military officials contend that those problems are being addressed aggressively. At the U.S. Military Academy at West Point, heavy emphasis is put on becoming technologically nimble. But instruction goes beyond rote memorization. Chief of Academic Computing Maj. Robert J. Schuett said young cadets are taught that they should treat the computer as a tool, not as an officer-in-command.

"One of our most critical lessons is teaching our cadets when to rely on a computer's information and when to analyze the situation on your own," Schuett said. "We don't want to teach the cadets to be intimidated by it, because if they start using it as a crutch, we're in trouble."

Stinger missiles *are called "one of the most confusing weapons"*

However, a soldier's reliance or nonreliance may be a moot point when faced with the task of simply operating technically sophisticated armament. The Stinger anti-aircraft missile is often cited as one of the most confusing weapons around. To operate the weapon, the gunner must complete 18 steps, some of which are complex, and make rapid decisions about the type of aircraft being fired on. All this must occur in the confusion and heat of battle.

Other weapons may simply be too clever for their own good. In theory, a surface-to-air missile is incredibly accurate because it can pick up on subtle clues to find and destroy the enemy. But if these same clues are changed, it can be alarmingly easy to disable. A 79-cent roll of aluminum foil, for example, when cut into small ribbons and released from an aircraft or ship, may be enough to befuddle the radar tracking system on a missile often costing upwards of $50,000.

Because the list of the Pentagon's high-tech goof-ups is long, the Defense Department has begun to seriously investigate the use of artificial intelligence. Observers noted that if these efforts pick up, developers are sure to follow closely behind. As Gary Martins, former manager of advanced software research and development at Rand Corp., put it, "When the Department of Defense takes a big bag of money and paints 'AI' on it, this instantly creates a lot of believers in artificial intelligence."

Unfortunately, this does not create a working technology. Critics contend that war is kaleidoscopic, filled with constantly changing, unexpected and confusing situations that some feel cannot be completely satisfied by mathematical formulas or set rules.

Nevertheless, the debate over how much technology is required for the average fighting soldier to do his job effectively is likely to go on as long as war does. "This is one issue that is not going to go away," Schuett added. "Our job right now is to equip the soldier rather than man the equipment. If we succeed there, half the battle is already won."

Zeroing in on fiber

One important target for Defense Department dollars is communications. Whether it is a five-star general calling down orders or an airborne missile receiving them, the military is relying heavily on fiber optics to get the message across.

The military has found a lot to like about fiber optics. The signals are difficult to tap because they do not radiate and are not susceptible to data corruption from high-noise environments such as the operation of nearby heavy electrical machinery. In the early 1990s, analysts predict, fiber optics will be found everywhere, from the sea floor — where they will be used to string together hydrophones that listen for submarines — to the stratosphere, where they will hang from surveillance balloons.

Portable local-area networks have also crossed the Pentagon's sightlines. The Second Marine Division in Fort Pickett, Va., for example, has used a portable 10net Communications, Inc. LAN for electronic mail and planning military strategies during week-long war games.

JAMES DALY

Wang
FROM PAGE 1

"What I've seen in the last few weeks is real fear from very large customers," said Wendler, who estimated that he has talked with about three dozen Wang users in the last two weeks.

A month ago, Forrester Research, Inc. in Cambridge, Mass., reported a similar conversation with what it said was one of Wang's largest customers. "It's not uncommon, and it's happening every day" among this class of user, Wendler said.

Meanwhile, small to medium-size shops are reportedly setting their own time limits for Wang to straighten out its problems — a year, according to many of the users interviewed during the last two weeks by *Computerworld* and Gartner Group.

Analysts are unanimous that Lowell, Mass.-based Wang cannot work much longer under what they describe as a "black cloud" of financial uncertainty. The issue really is not its bad debt. "You don't want orders to fall," observed Michael Geran, an analyst at Nikko Securities International.

"Resolution of this issue will certainly bring some calm out there [among customers]," conceded Paul Henning, Wang's director of investor relations.

Last week's action, however, did not calm the bond market. Standard & Poor's Corp. Friday downgraded the risk ratings on Wang's subordinated debentures and removed ratings on commercial paper issues by the company and its credit corporation. S&P said the next interest payment date on a rated Wang bond issue is Aug. 31.

Customers, however, are waiting for action that affects their investment in the company's products. "We hope that as intelligent business people, all parties could get together and agree on something of benefit to Wang's customers," said Matthew Gillman, chairman of the steering committee of the U.S. Society of Wang Users.

Recent surveys by *Computerworld* [CW, Aug. 14] and others conclude that small to mid-range Wang users, as well as some developers, are enthusiastic about Wang's technology; many believe it gives them a competitive edge. It is also true that regardless of their feelings, these users are less able financially to walk away from investments in Wang, Gillman agreed.

Ironically, the customers who are the most able to withstand the ebb and flow of a vendor's financial fortunes are the ones most likely to reassess their commitment to Wang, according to analysts.

For example, consultant Frank Dzubeck said he recently spoke to a client who was in the process of installing Wang systems in a large number of branch offices. "He [wound up] in the vice-president's office attempting to defend his job," said Dzubeck, who is president of Communications Network Architects, Inc. in Washington, D.C. "If you are a Wang salesman, you've got to be worrying about this now."

"We're talking about accounts that have 5,000 to 10,000 users, even beyond 10,000, with revenue streams in excess of $50 billion," Wendler said. He added that many customers were already dissatisfied with Wang on a number of issues and were cutting back on some purchases. But the public fight over Wang's credit line has turned the spigot off, he said.

Of course, large companies tend to do long-term strategic plans, rethinking their technical strategy every five years or so, said Judith Hurwitz, a senior consultant at Patricia Seybold's Office Computing Group in Boston. She noted that there are large users such as John Hancock Co. and Johnson & Johnson Co. that are standing by Wang.

Wang reneges on debt

BY PATRICIA KEEFE
CW STAFF

No more Mr. Nice Guy.

In a grim game of one-upmanship, poker-faced Wang Laboratories, Inc. first rejected a loan restructuring plan offered by its creditors and then surprised everyone by suspending payment of the principal and interest on roughly $300 million in debt.

An Wang *takes financial action*

Technically, creditors could force Wang into bankruptcy after a 30-day grace period. But this is highly unlikely, said analysts, who see Wang in the driver's seat.

An Wang "understands that he has the banks over a barrel," said Steve Wendler, a program director at Gartner Group, Inc. in Stamford, Conn. He noted the banks would not walk away from a $1 billion investment.

Following the expiration of two successive waivers of compliance regarding its revolving credit agreements, Wang and its bankers remained deadlocked in yet another round of "difficult, arduous and complex" negotiations, said Paul Henning, Wang's Director of Investor Relations.

Michael Geran, an analyst with Nikko Securities International, recalled Control Data Corp.'s battle with creditors four years ago. "I've lived through the 'Perils of Pauline' fakes." In the end, Geran said, both sides will settle, coming out less happy than when they went in.

Henning suggested Wang had rejected the banks' financial terms. Most analysts speculated that the banks most likely asked for one or both of the following: that An Wang step down as chief executive officer or that Wang come up with collateral possibly in the form of personal holdings outside of Wang stock.

Wang also is racing the clock to complete its search for a president. That undertaking and Wang's quest for a white knight are unlikely to succeed without a guarantee of complete authority in a firm where 80% of the voting stock is controlled by the Wang family.

"No one is going to come in and lay down a bunch of money in a company already financed to the hilt and have the Wang family maintain control," Wendler said.

In a separate announcement, Wang confirmed the long-rumored departure of Ian W. Diery, executive vice-president of Worldwide Operations, who resigned to pursue other interests. Diery anticipated his exit in an interview with *Computerworld* after assuming his post. "If I didn't perform for the next two years I would expect to have difficulty maintaining my reputation and my job. That's life," he said. [CW, May 18, 1987].

Mixing business, technical savvy

BY ALAN J. RYAN
CW STAFF

"You have got to know your business to be successful in information systems."

That statement, heard at most IS-related conferences in the last three years, might leave some wondering just how deeply entrenched in the business they should be, or how far they can go without stepping on chief executive toes.

There are no easy answers. Two IS managers at southern-based manufacturing firms recently said having knowledge about their businesses is important, but their main priority is to act as a service organization. Said one, "They are paying me to be the EDP person of this business. The functional managers run the business, and I can't tell them what to do."

Yet, eight other IS directors and consultants interviewed recently agreed only partially or disagreed altogether with that sentiment. Those who have an understanding of the business that is as deep as the CEO's are more likely to be successful, they said. Max Hopper's success at American Airlines is a classic example, one said.

"If you don't understand the business, then you are a great data processor. That's OK," said George Buick, vice-president of IS and chief information officer at Highland Superstores, Inc. "But you get a lot more out of somebody who knows the business."

Highland's Buick *says business first*

Some of those interviewed said the extent to which the systems chief should know the business depends on the type and size of the operation.

"The MIS director doesn't belong in the computer room unless it's a one-man shop," said Robert C. Walsh, director of MIS and corporate controller at Schwinn Bicycle Co. in Chicago. Instead, he said, the manager should be sitting in at top-level meetings. "If an MIS guy is lost in the bits and bytes, he will make some decisions that are less than optimal."

The IS officer must have enough business sense to be a translator, said consultant Dudley Cooke, president of the Executive Insight Group in Bryn Mawr, Pa. He "has to be able to understand what the CEO is thinking and translate that into action," he said.

Being a translator is also important at Heller Financial, Inc. in Chicago, said Senior Vice-President of Information Management Charles Mallet. "Our job is to understand how to help users articulate what they want."

And that understanding begins in the executive suite. "The really successful IS executives are the ones involved with senior management when they are talking about mergers and acquisitions; they are the ones that participate in all the discussions on strategy," said M. Victor Janulaitis, CEO of Positive Support Review, Inc. in Los Angeles.

Five of the seven IS directors interviewed said they work closely with their CEOs and feel comfortable proposing both systems and straight business ideas.

Another way many IS managers get their ideas to the top is by working with the functional areas they support, attending meetings and planning sessions. Both Dan Cavanagh, senior vice-president of IS at Metropolitan Life in New York, and Albert Hyland, director of worldwide systems at Cambridge, Mass.-based Polaroid Corp., said they use that approach.

Still, some say a preoccupation with business might overshadow the need for a strong technical background in the top IS post. In the 1970s, most IS directors were technically oriented. There has now been a shift to a business orientation. But in the 1990s, according to Gartner Group, Inc. Executive Vice-President Bruce Rogow, companies will need CIOs who are both technically oriented and business-minded.

"There will be real hell to pay in those organizations where the CIO doesn't understand the technology" during the 1990s, Rogow said.

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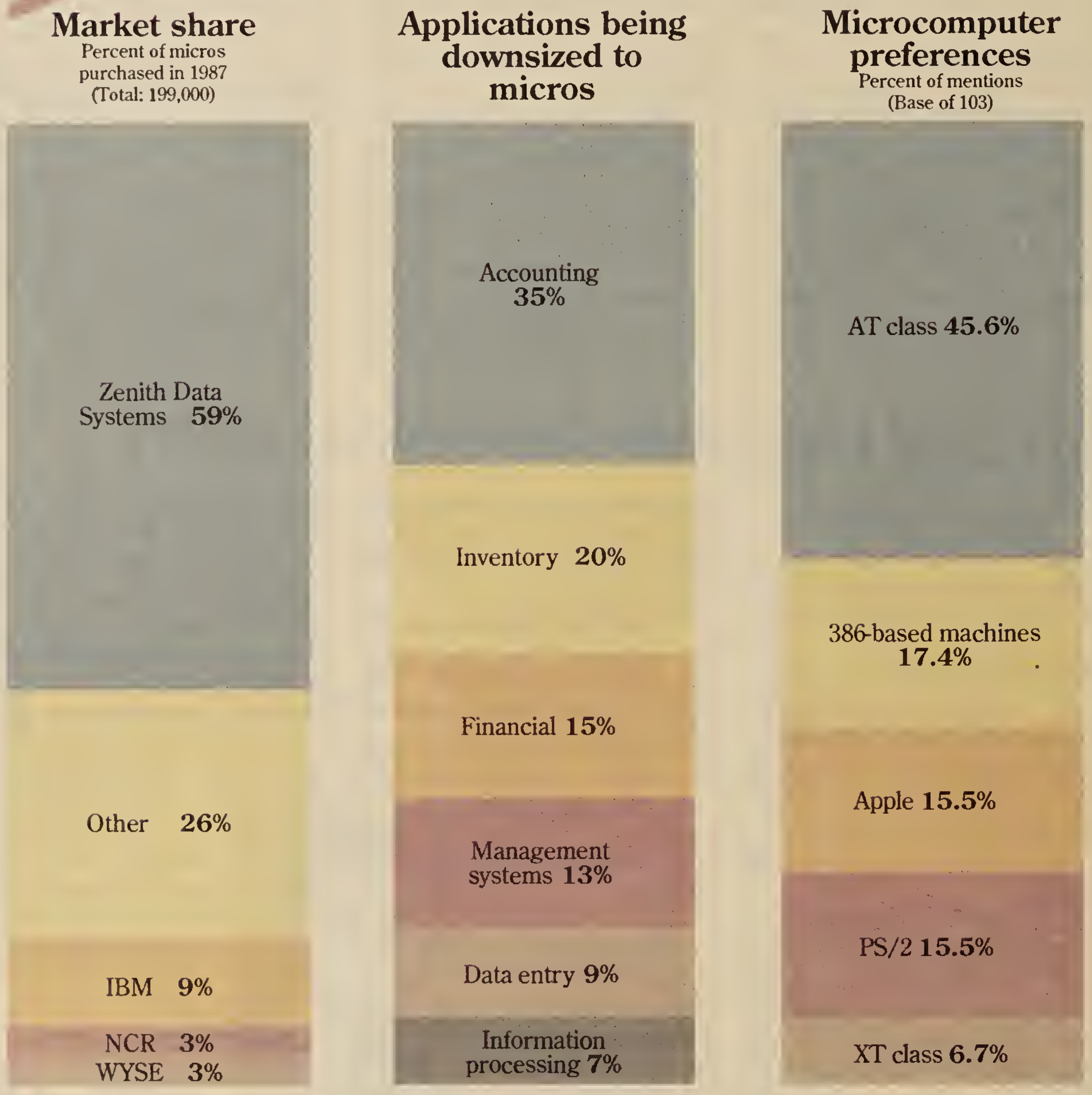
TRENDS

MICROCOMPUTERS IN THE FEDERAL MARKET

With the expanding functionality of today's micros and the continuing trend of application downsizing, the federal micro market demand is expected to grow from $390 million to $510 million in 1994.



The lowest bidder *is the one who captures the largest share of the federal market. In this case, Zenith is at the helm.*

Accounting's *many modules make it the application most frequently downsized.*

AT-class machines *still remain the machine of choice among government micro users.*

SOURCE: INPUT, MOUNTAIN VIEW, CALIF.

CW CHART: TOM MONAHAN

NEXT WEEK

No. 2 companies always have to try harder. Cleveland-based American Greetings, which occupies that slot in the greeting-card industry, realizes that means information technology is not just an advantage, but a competitive necessity. A look at the firm's strategy under Vice-President of IS Dean Trilling appears in Manager's Journal.

JACK VAN ANTWERP

Like many other kinds of resources, information can be made more useful through refinement. The need for this kind of filtering and distillation is growing more critical as raw data multiplies and decision-making time compresses. Read In Depth to find out about refinement tools that may soon help us extract maximum value from data deposits.

INSIDE LINES

At least it's not flu season

According to a draft copy of a manual on coping with electronic vandalism, the Fu Manchu virus is programmed to go off this month. That's the newest strain of the Jerusalem virus, which was launched from that city about two years ago, said the Computer Virus Industry Association. And because it takes about two years for a single virus strain to spread widely enough to cause serious problems, watch out for the Jerusalem virus, too. Also expected to make the rounds are two strains of the Cascade virus, one slated for Oct. 1 and the other for Dec. 1; the Friday the 13th virus, expected on Oct. 13; and the potentially devastating Traceback virus, which is expected to appear any time between Dec. 5 and 28, depending on the strain.

Maybe they'll be Silverlake Systems

Mainframe plug-compatible maker NAS, which has been under fire by analysts for the past year for lack of marketing savvy, just hired James Balassone, IBM's former director of business practices. Balassone helped develop the marketing effort for IBM's exceptionally successful AS/400 "Silverlake" family.

Not enough fiber for ya?

Expect DEC to finally come down off the FDDI fence at the Networld conference next month. The company is expected to hold briefings on how it plans to integrate the fiber-based networking standard with its own Ethernet-based systems.

Risen from the dead

Just when you thought Novell was too embarrassed to ever mention its incredibly overdue Systems Fault Tolerance Level III file server, Darrell Miller, executive vice-president of Novell's software group, popped up last week with the declaration that fault tolerance is indeed on the way. He told attendees at Multi-Net Expo in Houston that sometime next year, the company will be showing servers that actually mirror one another. Not only will that provide backup redundancy, but it will also assist LAN users with maintenance chores, he said. Others say to look for a maintenance upgrade on Netware Version 2.1.5 next month.

Lotus Cityside

Lotus plans to upgrade Metro and Express so they will use less memory and be better integrated with each other. Apparently, memory constraints were such that they spawned the following joke: Metro is in the midst of a transit strike.

Surf's up!

Hewlett-Packard's New Wave software for PCs is set to crash on the beachhead of IS shops Sept. 1. Webb McKinney, general manager of HP's Information Systems Division in Santa Clara, Calif., says the direct-sales force has been primed and 100 software engineers have prepared for the rollout. HP will bundle word processing and E-mail packages with the icon-oriented, IBM-compatible New Wave for $195 per copy. About 15 applications written by independent developers will follow by 1990, many of them New Wave variations of existing Microsoft Windows products. Some 200 companies have beta-tested New Wave, including American Airlines.

The market is breathless

An IBM spokesman disclosed that IBM is considering announcing its new line of workstations and servers — which will have performance of at least 20 million instructions per second and an entry point of $20,000 or less — later this year or in early 1990. That would put IBM only about eight months behind the rest of the workstation market. There's a catch, though. The new workstations will incorporate the Micro Channel Architecture, presumably offering some sort of commonality between them and PS/2s.

The Computerworld bulletin board is one thing that hasn't been disabled by the Nynex strike. Call us up with your tips, comments and questions and browse through our massive library of virus-free shareware at (508) 626-0165 or (508) 626-0235. Or direct your tips to News Editor Peter Bartolik, who's sometimes awestruck but never on strike, at (800) 343-6474 or (508) 879-0700.

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